Rohde & Schwarz Topex

VoiBridge Lite

VoIP-GSM Gateway

User Manual

2012

ROHDE&SCHWARZ

Dear Client!

Thank you for purchasing the ROHDE & SCHWARZ TOPEX S.A. product and congratulation for your wise choice.

Our VoiBridge Lite equipment has the following features:

- SIM cards from up to 4 different Mobile Operators
- Least Cost Routing
- Intuitive web based GUI
- Fast return of investment
- Dynamic Call Routing & Mobility Extension features
- GSM / UMTS support
- SIP and H.323 protocols supported
- SIP Registrar - up to 10 SIP subscribers
- Advanced call-routing of incoming & outgoing calls
- Advanced security with integrated firewall
- Access Control List
- SIM usage (load balancing),
- Works with any IP-PBX or Softswitch based on SIPor H323 protocols
- Mobility Extension Feature–allows for mobile phones act as PBX interior lines
- NAT Traversal capabilities
- DISA with customer predefined voice navigation messages
- Firewall using IP tables (Linux)
- Real Time Clock
- Flash memory (keeping SMS when power is off)
- Advanced SMS capabilities
- Advanced Callback functions – by ring or SMS
- DID - Direct Inward Dialing
- Integrated LAN and WAN ports - possibility to use public and private IP addresses
- SNMP integration allows for remote configuration via SNMP protocol
- Billing - CDR generation with time stamp from RTC
- Configurable alarms by e-mail, SMS or phone call in case of low ASR or hardware failures
- AT commands support
- SMB and Enterprise solution for interconnecting IP based telephony with cellular networks
- Call Center solution for incoming/outgoing calls from/to GSM/UMTS networks
- Mobile operators offering their services to Business Customers with IP infrastructure
- Telesales centers calling cellular networks
- Gateway between cellular networks and VoIP network

Conformity!

ROHDE&SCHWARZ

Rohde & Schwarz Topex S.A.

Declaration of Conformity

No: 265

We, designer and manufacturer

Rohde & Schwarz Topex
Feleacu 10, 1st District, Bucharest
014186, ROMANIA
www.topex.rohde-schwarz.com

Declare under our sole responsibility that the product:

Product Name:	**TOPEX VoiBridge**
Product Type:	**Lite**
Product Description:	**VoIP - GSM/ HSDPA Gateway** Quad band GSM: 850/900/1800/1900 MHz Tri Band UMTS/HSDPA: 850/1900/2100 MHz

to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).
The product is in conformity with the following standards and / or other normative documents:

Health & Safety (Art. 3(1)(a)):
EN 60950-1:2001

EMC (Art. 3(1)(b)):
EN 55022 :2000
EN 55024 :2001

Spectrum (Art. 3(2)):
EN 301 511 V9.0.2

Product has applied the **CE** conformity mark.

Supplementary information:
Technical file held by:
The technical documentation relevant to the TOPEX VoiBridge Lite product is held at Rohde & Schwarz Topex Company at the address mentioned above.

Place and date of issue (of this DoC): 06th of March 2012, Bucharest, Romania

Signature: _____

President Mr. ADAMESCU Dan

Rohde & Schwarz Topex SA Bucuresti

Signature: _____

Q.A Director. Mrs. PĂUNOIU Carmen

WEEE Directive Compliance

WEEE Directive

This symbol applied on your product or on its packaging means that is product fulfils the WEEE Directive. The product shall not be recycled as ousehold waste; it will be disposed separately as sorted waste.

Regarding to WEEE Directive the recycling EE equipments must be :complish separately in purpose of preserving natural resources and to oid the occurring negative effects about human health and environment. ne acquired product shall not be treated like household waste and will be ven to a specialized company.

! Please do not dispose your ROHDE & SCHWARZ TOPEX product s unsorted waste (household waste), recycle it to protect the environment. eparate the packages according to waste disposal options and sort it for cycling.

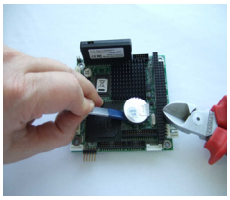
For supplementary information contact us to:
Phone: +4021 408 39 00 or **www.topex.rohde&schwarz.com**

2006/66/CE Directive Compliance

This symbol applied on your product or on its packaging means that product includes a battery (CR2032 Lithium type) which is subject to apart collecting from household and WEEE waste.
The battery will not be recycled as household or WEEE waste; it will be disposed separately in purpose to protect the human health and environment and preservation of natural resources.
For this at the end of product life remove the battery from the product performing the operations described bellow:

1. The battery is comprised by processor card. For removal open the product case or extract the card and identify the battery and its placement on PCB.
2. Cut the lamella with a clipper.

3. Take off the battery from its holder using a tweezers or another suited tool.



4. Push the battery till this leaves the socket.

5. Deliver over the battery or collect it with similar waste and deliver together to a specialized company for battery treatment.

Please do not dispose the battery of your ROHDE & SCHWARZ TOPEX product as common waste household waste), recycle it to protect the human health and environment. For supplementary information contact us to:

Phone: +4021 408 39 00 or www.topex.rohde&schwarz.com

Record of Changes

ISSUE	DATE	NUMBER OF PARAGRAPH	A* M D	TITLE OR BRIEF DESCRIPTION	MADE BY
A-D	2009-2011	All	A,M	First issue and different changes	C. Malide V. Sfetcu
E	2012	Cover, conformity	A,M	Added conformity information	V. Sfetcu

A – Added, M- Modified, D- Deleted

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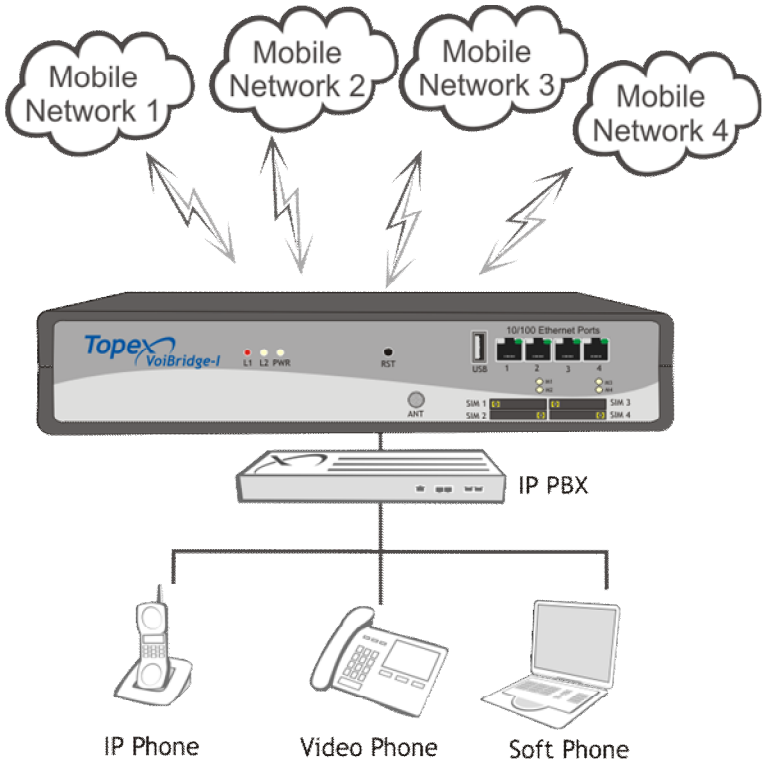
1. INTRODUCTION

The VoiBridge Lite device is a versatile VoIP-4-mobile gateway that cuts down interconnection costs and performs convergence between 2G/3G+ mobile voice networks and VoIP calls (supported protocols are SIP and H323).



REASON FOR THE INTRODUCTION OF THIS PRODUCT:

- To complete the line of Topex gateways

VoiBridge Liteis a new member of the Topex family of gateways and PBXs. It is a compact variant of the classic VoIP to mobile gateway, featuring just four mobile modules and four ETH port. While previous MobiLink devices connected analogue (FXO/FXS) or digital (ISDN NT/TE) phone ports to mobile networks, this one has Voice over IP ports, since it was designed to convert outgoing and incoming calls from VoIP to mobile.

The purpose remains the same, cutting down the costs of cellular calls, but the new mobile-4-VoIP interface with LCR capabilities represents a new approach in *convergence* between VoIP (H323 and SIP protocols) and home or corporate mobile communications.

By interfacing between mobile networks and IP it allows end customers to benefit by saving costs, while its two modules design provides scalability and flexibility.

Scalability means that one can build up the solution cost effectively, by adding another device for each extra pair of mobile channels required. Flexibility means that, while previous convergence equipment from Topex did provide tens of VoIP and GSM channels on the same location (up to 60 channels), the new product allows you to build a *distributed* solution, with individual VoiBridge I4-GSM devices featuring up to four mobile channels located exactly where they are needed, located in several remote areas, in different countries or even continents.

- To extend the range

While the analogue or digital MobiLink equipment allowed connections to phone terminals or PBX's located a few meters or up to 1000m away, with VoiBridge Lite the length of the connection becomes "infinite". The mobile gateway may be located anywhere in the world and still perform its task as an interface.

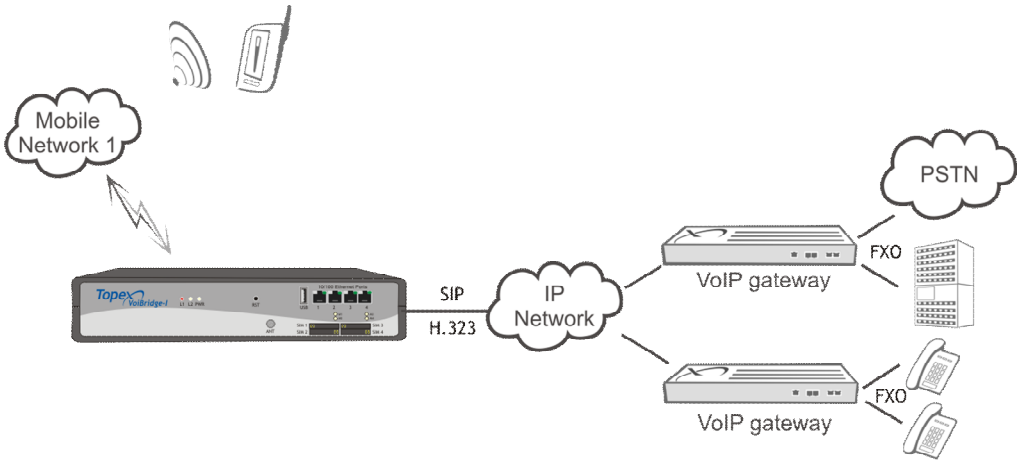
Support, debugging and firmware upgrading can also be performed faster and from a longer distance. Previous versions of the VoIBridgeI4 were connected to a local computer via serial RS-232 or USB cable. This allows management of the device, using an OAM program, sending/receiving SMS and diagnostic or update of the firmware. These operations had to be performed from the computer connected to it!

With this new VoiBridge I4-GSM , the management computer can be in anywhere in the world. The professional who performs debug or update of firmware connects to it remotely, via secure connection by IP networks.

Intended use

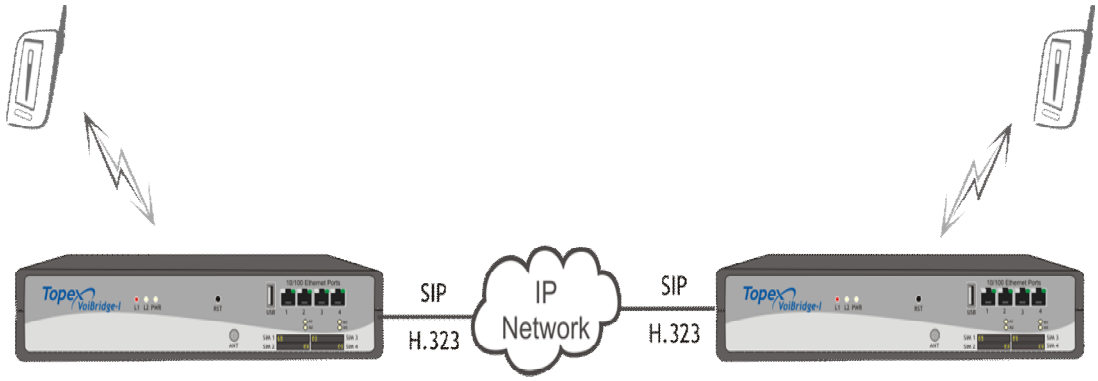
VoiBridge Litewas also intended to be a complimentary product for the line of Class 4 & Class 5 Topex Soft-switches, allowing cost-effective access to mobile networks for the SIP users registered to the Topex IP-PBX.

Using the VoiBridge Litecan be beneficial for home users too, but it was intended for **office use**, both for companies that have many foreign affiliates and for small to medium companies that already own an IP infrastructure. Companies with international offices can use one or several VoiBridge Litedevices at each location - the calls will be routed as VoIP via Internet to the respective locations where they will be **terminated** as local GSM calls to the respective mobile networks, with minimum costs.



Enterprises with existing IP infrastructure will use the VoiBridge Litedevices to **terminate** the calls to mobile networks, achieving substantial savings on outgoing and incoming calls from IP to agents in the filed using GSM networks and vice versa.

It can also be used by providers, ensuring low-cost call termination at different locations throughout the world. VoIP calls originating from anywhere can be sent via Internet to be **terminated** through VoiBridge Lite devices located at the corresponding sites. The respective VoiBridge Litedevices will then directs the calls to the required local GSM networks, with the minimum possible cost and best voice quality.

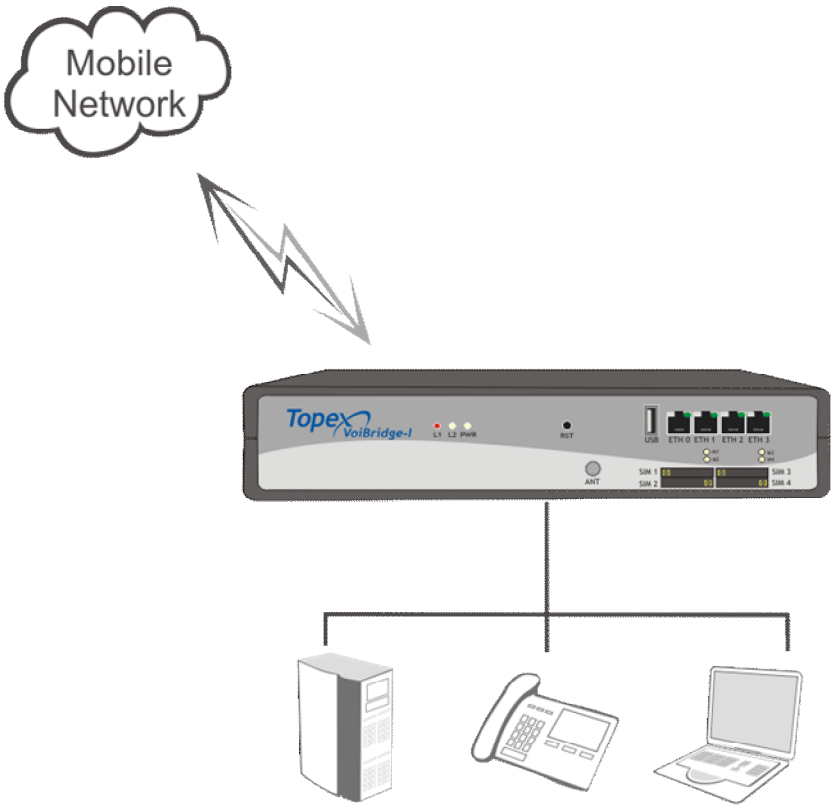


Only imagination is the limit! Our VoIP-4-GSM gateway may be used in homes or sales offices, by individuals or whole households, multi-tenant apartments, at hotels & motels, different professional offices, churches and temples, stores and warehouses, brokerage offices, Law offices, , branch offices, agencies for Real Estate, medical cabinets and clinics, clubs and Day care centers, cafés and restaurants, gas stations, schools and University campuses, various other offices.

Flexible Usage

VoiBridge Lite can be used in several ways:

- with an IP PBX that has SIP subscribers;
- with an IP PBX that has analog subscribers and use a H323 trunk;
- without any PBX, directly with hardware SIP telephones,
- Without other hardware, using just soft phones, such as the free application SJ Phone.

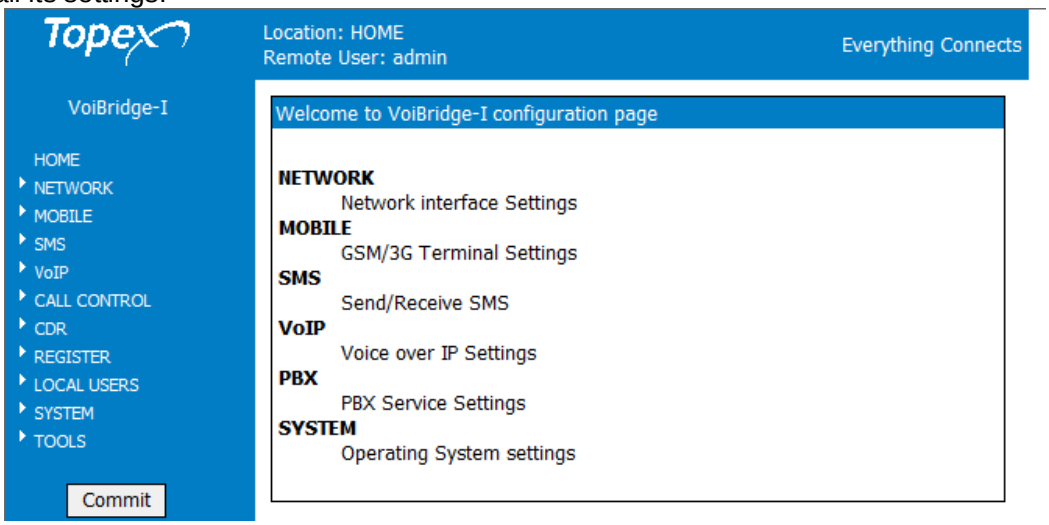


In order to ensure correct installation/configuration and good operation of the VoiBridge Litedevice, the manufacturer strongly recommends the study of this manual before attempting operation.

2. VoiBridge Lite FEATURES

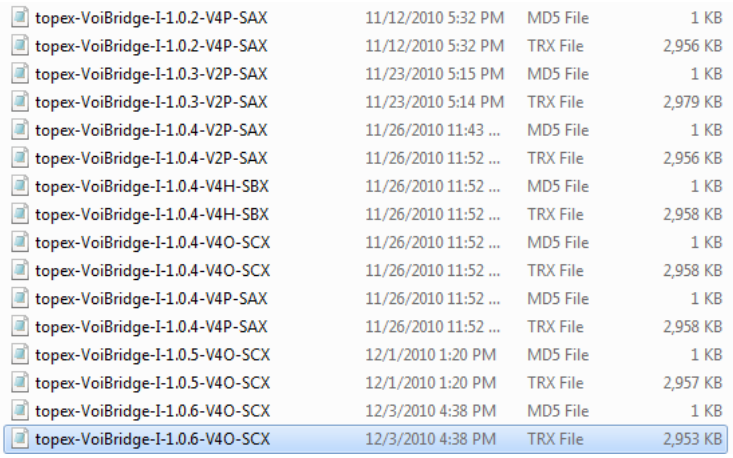
The VoiBridge Lite device is a versatile VoIP-4-mobile gateway that cuts down interconnection costs and performs convergence between mobile voice networks and VoIP calls (supported protocols are SIP and H323).

VoiBridge Lite is fully configurable via Web pages; *it does not require installation of drivers or any additional software* on a PC. The graphics interface that shows up in the browser allows easy access to all its settings:



Since the product is Linux based, applications to enhance VoiBridge Lite or to customize it according to the special needs of various clients can be quickly designed by our software developers.

When you sign up for our technical support offer, our best technical experts are available for technical queries. In addition, the software upgrades can be done remotely via the Internet, and are free of charge.


topex-VoiBridge-I-1.0.2-V4P-SAX 11/12/2010 5:32 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.2-V4P-SAX 11/12/2010 5:32 PM TRX File 2,956 KB
topex-VoiBridge-I-1.0.3-V2P-SAX 11/23/2010 5:15 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.3-V2P-SAX 11/23/2010 5:14 PM TRX File 2,979 KB
topex-VoiBridge-I-1.0.4-V2P-SAX 11/26/2010 11:43 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V2P-SAX 11/26/2010 11:52 ... TRX File 2,956 KB
topex-VoiBridge-I-1.0.4-V4H-SBX 11/26/2010 11:52 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V4H-SBX 11/26/2010 11:52 ... TRX File 2,958 KB
topex-VoiBridge-I-1.0.4-V4O-SCX 11/26/2010 11:52 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V4O-SCX 11/26/2010 11:52 ... TRX File 2,958 KB
topex-VoiBridge-I-1.0.4-V4P-SAX 11/26/2010 11:52 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V4P-SAX 11/26/2010 11:52 ... TRX File 2,958 KB
topex-VoiBridge-I-1.0.5-V4O-SCX 12/1/2010 1:20 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.5-V4O-SCX 12/1/2010 1:20 PM TRX File 2,957 KB
topex-VoiBridge-I-1.0.6-V4O-SCX 12/3/2010 4:38 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.6-V4O-SCX 12/3/2010 4:38 PM TRX File 2,953 KB

VoiBridge Lite is a highly versatile solution, when the customers require special solutions; its embedded firmware can be easily upgraded over the Internet.

Serial Number	1110584
Kernel Version	system-1.0.8-VXX-SAX
Firmware Version	VoiBridge-I-1.0.6-V4O-SCX

3. IDENTIFICATION

3.1 LABELS AND IDENTIFICATORS

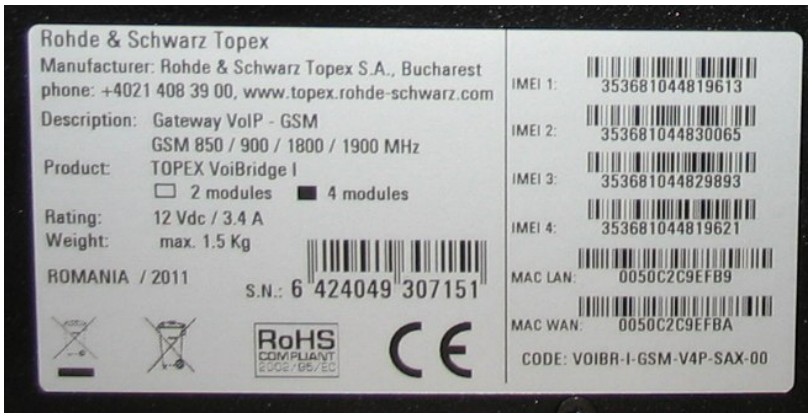
On the bottom of the case of every Topex device there are several labels or tags that indicate the characteristics and compliance, as shown in the following example.

3.2 SIGNIFICANCE OF LABELS

These adhesive labels contain information about the manufacturer, type, model, certification, approval and compliance to UE and international or USA directives such as FCC.

The labels may include barcodes and refer to the following data:

Manufacturer and product type

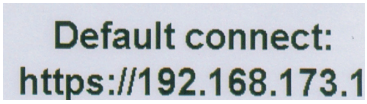

Rohde & Schwarz Topex
Manufacturer: Rohde & Schwarz Topex S.A., Bucharest
phone: +4021 408 39 00, www.topex.rohde-schwarz.com
Description: Gateway VoIP - GSM
GSM 850 / 900 / 1800 / 1900 MHz
Product: TOPEX VoiBridge I
2 modules 4 modules
Rating: 12 Vdc / 3.4 A
Weight: max. 1.5 Kg
ROMANIA / 2011
S.N.: 6 424049 307151
RoHS COMPLIANT 2002/95/EC
IMEI 1: 353681044819613
IMEI 2: 353681044830065
IMEI 3: 353681044829893
IMEI 4: 353681044819621
MAC LAN: 0050C2C9EFB9
MAC WAN: 0050C2C9EFBA
CODE: VOIBR-I-GSM-V4P-SAX-00

- Manufacturer identification (name, phone, website);
- Description (“Gateway VoIP- GSM”) and details of variant, in this case the type of mobile networks it works with, and if it is fitted with one, two or four mobile modules
- Model identification, such as VoiBridge Lite, which allows the network operator to check the terminal as one of its approved models, so no additional certification or approval is required;

Network identification

- Identification for the Ethernet network can include MAC for local and remote side, in case of routers. VoiBridge Lite features 2 MAC addresses;
- MAC LAN or WAN, the Media Access Control address (unique hardware number) on the local or remote network side. VoiBridge Lite has four LAN ports, thus it will display one Mac address for WAN access and one for LAN interface ports (there are three ETH ports for LAN connection);
- IMEI code, International Mobile Equipment Identity for SIM based equipments. A unique 15- or 17-digit number such as <<269751923786501>> that identifies an individual mobile station to a GSM or UMTS network handset. The IMEI code is on all GSM and UMTS / HSPA mobile terminals, commonly found in Europe, Asia, Africa and increasingly in America. If the Topex device features several mobile modules – for instance VoiBridge Lite has up to four GSM modules - it will have, correspondingly, more IMEI labels - one for each mobile modem;

Default connect



Default IP address of the Topex device in the local LAN and type of connection. For VoiBridge I4-GSM, the default is **https**, with IP address **192.168.173.1**

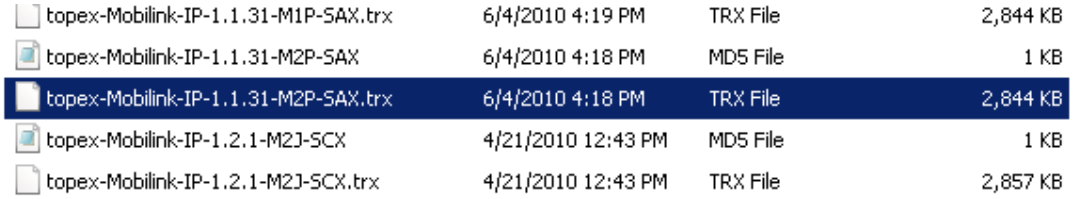
Warning! *Please read carefully this label, since different Topex equipments may have different default IP addresses, such as 192.168.1.1. or 10.0.0.1. The VoiBridge Lite gateways have, as shown by the label glued at the bottom, the defaults address:* ***192.168.173.1***
Also, the label clearly specifies the ***type of connection****, which is HTTPS. Most Topex devices such a secure connection, only a few use the ordinary http link. If you try to use the wrong type of connection, it will not work, so please look at the "Default connect" label before establishing a connection to the VoiBridge Litebox.*

EMC, Safety, and CE Directive Compliance.

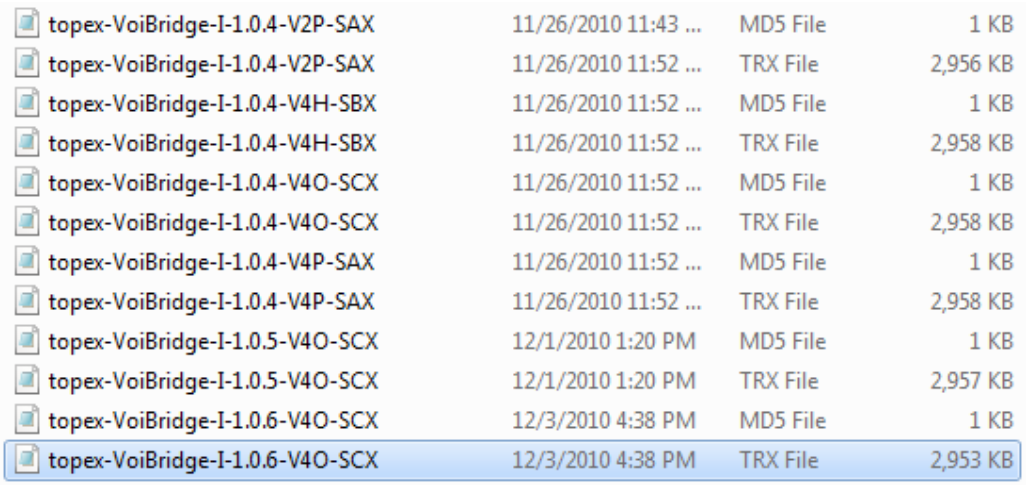
See "Conformity" chapter in "Installation Manual" for VoiBridge Lite equipment.

Product version

The label "CODE" indicates exactly what type of product it is. You must mention this code when you call Support for upgrade and for repairs. Also, when you perform software upgrade, you must check that the firmware version you want to load is fitted for your model of equipment.


topex-Mobilink-IP-1.1.31-M1P-SAX.trx 6/4/2010 4:19 PM TRX File 2,844 KB
topex-Mobilink-IP-1.1.31-M2P-SAX 6/4/2010 4:18 PM MD5 File 1 KB
topex-Mobilink-IP-1.1.31-M2P-SAX.trx 6/4/2010 4:18 PM TRX File 2,844 KB
topex-Mobilink-IP-1.2.1-M2J-SCX 4/21/2010 12:43 PM MD5 File 1 KB
topex-Mobilink-IP-1.2.1-M2J-SCX.trx 4/21/2010 12:43 PM TRX File 2,857 KB

Likewise, when the code of your equipment is a VOIBRI_V4O_SAX, you should look for "**V40**" firmware, not for software versions with letters "V2O' or 'V4P":


topex-VoiBridge-I-1.0.4-V2P-SAX 11/26/2010 11:43 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V2P-SAX 11/26/2010 11:52 ... TRX File 2,956 KB
topex-VoiBridge-I-1.0.4-V4H-SBX 11/26/2010 11:52 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V4H-SBX 11/26/2010 11:52 ... TRX File 2,958 KB
topex-VoiBridge-I-1.0.4-V4O-SCX 11/26/2010 11:52 ... MD5 File 1 KB
topex-VoiBridge-I-1.0.4-V4O-SCX 11/26/2010 11:52 ... TRX File 2,958 KB
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topex-VoiBridge-I-1.0.4-V4P-SAX 11/26/2010 11:52 ... TRX File 2,958 KB
topex-VoiBridge-I-1.0.5-V4O-SCX 12/1/2010 1:20 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.5-V4O-SCX 12/1/2010 1:20 PM TRX File 2,957 KB
topex-VoiBridge-I-1.0.6-V4O-SCX 12/3/2010 4:38 PM MD5 File 1 KB
topex-VoiBridge-I-1.0.6-V4O-SCX 12/3/2010 4:38 PM TRX File 2,953 KB

The rest of the letters (SAX, SBX, SCX) describe the software version, and of course you can load a firmware image with more features, or an updated version (1.0.5 instead of 1.0.4), but the letters describing the hardware model must correspond.

The hardware information is important, however keep in mind that the adhesive tab cannot ensure the precise type and version of firmware, because the application software can very easily be updated or upgraded by the user. After such a firmware update, the application program running on the Topex device may no longer be the same that was described by the label on the bottom of the case of the device. To learn about the current firmware, please use the Web interface of the Topex mobile gateway.

4.3 SOFTWARE INFORMATION

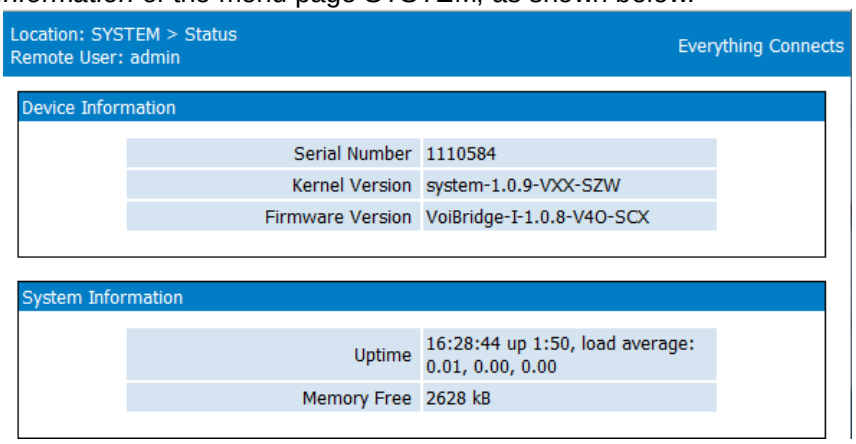
The Web interface displays some of the information described above, but also important additional information, which is NOT available through the adhesive tags.

Such information is related to the serial of the motherboard of VoiBridge-I, or the software version actually running on it.

For this you must access the System> Status page. Just enter into the browser the URL for the page: https://192.168.173.1/

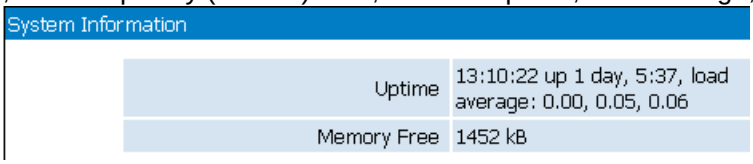
System Status

The information about serial number, current firmware and kernel can be found in the option *System> Status –Information* of the menu page SYSTEM, as shown below:

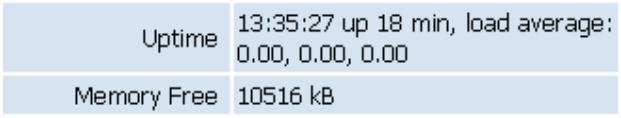


Here are displayed two categories of information :

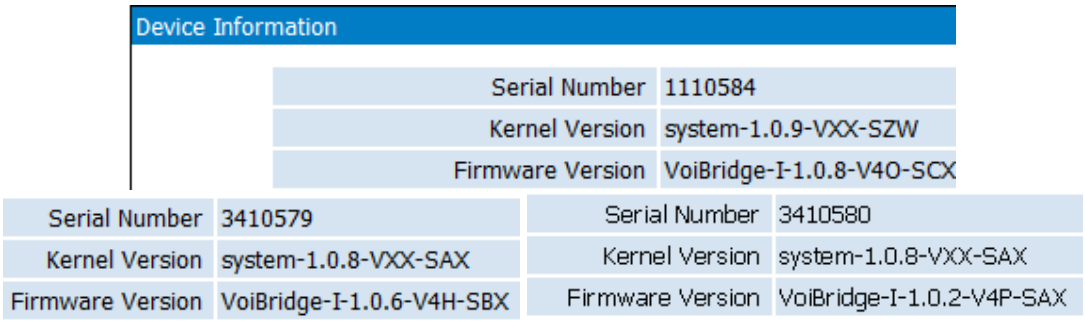
- **System info**, with temporary (current) data, such as uptime, load average, free memory, etc;



or



- **Device info**, permanent data, which is important for this chapter – serial number, firmware and kernel versions, etc..



The permanent identification info shown refers to the following elements:

- Serial Number: each gateway equipment from Topex has a unique identification number, such as 3410579 or 1110584 in the above examples, etc. This is the serial number of the main board of the Topex gateway. According to the requirements of the users, a certain VoiBridge Lite motherboard may be factory-fitted with up to four modems of different types, or other hardware features, but the serial numbers remain the same;
- Firmware version: version of the application firmware running on VoiBridge Lite: you may see "**product-1.2.3-XXX-YYY**. The name of the product may be VoiBridge-I, the version 1.0.2 or 1.0.9
  Thisfirmware can be easily updated (a new version) or upgraded (new software features added);
- Kernel version (Operating system version), such as system-1.0.9-XXX-YYY or "topex-kernel-1.0.2.-VXX-YYY" in the examples above. The application firmware and the operating system (root or kernel) may be updated separately, according to the requirements of the users. The operating system memory is write-protected, thus in case of problems, accidental erasing or power failure during updating, there is still a functional "system" allowing loading of a new software image;

Also, information related to the four mobile modules may be displayed:

To be able to see this Status page, one must be logged-on to the VoiBridge Lite device.

4. INSTALLATION

In order to ensure the proper operation of the VoiBridge Lite equipment you must follow the set-up steps shown below:

- Determine the exact type and model of Topex equipment
- Establish the best location
- Mounting (Hardware installation)
- Identification of connectors
- Connecting the Ethernet cable
- Disable PIN code request for the SIM to be used
- Configuring and installing the SIM cards
- Connecting the external antenna for the mobile networks
- Power up

Important note: Before starting installation, it is necessary to know exactly what type of equipment it is (several different versions or sub-types come in the same case, plastic or metal).

In order to determine the exact type and model of Topex VoiBridge Liteequipment, look at all the labels or indicators for the specific device.

Most of this information is found on the labels that are on the bottom of the case.

Note that some of these indications can only be seen in the administration programs (respectively the Web interface). For instance, in case of firmware upgrade performed by the customer, the label on the product remains the same, although the application program is now different!

4.1 Establishing the Best Location

In order to determine the best location for the TOPEX mobile router, consider the following:

- The length of the Ethernet cables that connect the VoiBridge Litegateway to the PC or the network switch must not exceed 100 meters.

- VoiBridge Liteshould be placed on a flat, sturdy surface located as far from the ground as possible. A high location, on the wall or on top of a desk or a shelf is best for the mobile connections, be it with 3G or GSM networks.

Also, VoiBridge Liteshould be kept clear of obstructions and away from heat sources, direct sunlight and heavy-duty electrical equipment.

- To ensure good coverage of the entire wireless mobile network in the area, VoiBridge Liteshould be installed in a central place in the building. Normally the antenna should be in a vertical position, but if reflections occur, better results may be achieved by changing the orientation.

- For power supply, use only the adapter shipped with VoiBridge I4-GSM .

The jacks of different power supplies may fit but the polarity, current, voltage or regulation factor may not be compatible.

- While the device is in operation, the antenna of the VoiBridge Liteunit should be at least 30 centimeters away from any human being.

4.2 Status indicators

VoiBridge Lite has several optical indicators (color LEDs) three - red and green and yellow) that shows the general status of the device. Other LED are for the for Ethernet interfaces and those for the up to four mobile modules.

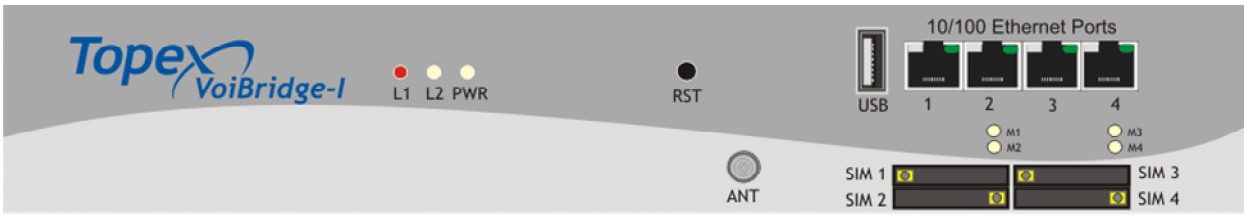


Figure 1: LEDs location

The indicators may light up continuously or flash to show status and traffic.
The three LEDs are located on the upper right area of the front panel. They are labeled respectively from left to right L1, L2 and PWR..

5.9. Significance of LED indicators:

- **PWR**: Shows powering of the device. Lights up green to indicate the proper power supply of VoiBridge I4-GSM. Thus, in normal operation it should be always ON
- **L1**: Red LED. Off = the operating system is not yet running, for example following a reboot. On = the main pbx application is running. Blinking = the main application has not started yet (initialization). Also, when the pbx application has stopped, this led will be blinking.
- **L2**: Orange LED. Off = additional storage not installed, lights up = flash USB is mounted and valid. This flash non-volatile storage may be internal or external (stick or USB-hard drive), inserted into the USB slot on the front panel.

Upon hardware reset:

Upon power up, you hold the recessed RST button pressed. When all three LEDs light up, you release the reset button. Then the red and green LED indicators will blink.

5. CONFIGURATION

The VoiBridge Lite can properly perform its functions of high-speed VoIP-4-mobile gateway with the default settings. However, it can be easily configured to meet various usage scenarios. “Configuring” or programming the equipment means adequate setting of all the parameters.
The embedded Linux firmware allows configuring the VoiBridge Lite without the need of additional software on the computer used for programming. A web browser as configuration terminal is all that is needed. This means that the VoiBridge Lite may be used on **any computer platform** and is not restricted to a certain operating system! *The examples in this manual are form using Windows XP SP3, but VoiBridge Litemay be used with any operating system.*
Using the web browser, the configuration can be performed remotely: the desktop PC or notebook may be connected to the TOPEX IP gateway either directly or through a hub by means of wired (Ethernet) connection.

Important Note: *Prior to using this VoIP to Mobile device you should check the basic settings to guarantee it will work in your environment (for instance, it may be required to change the default IP address and subnet mask).*

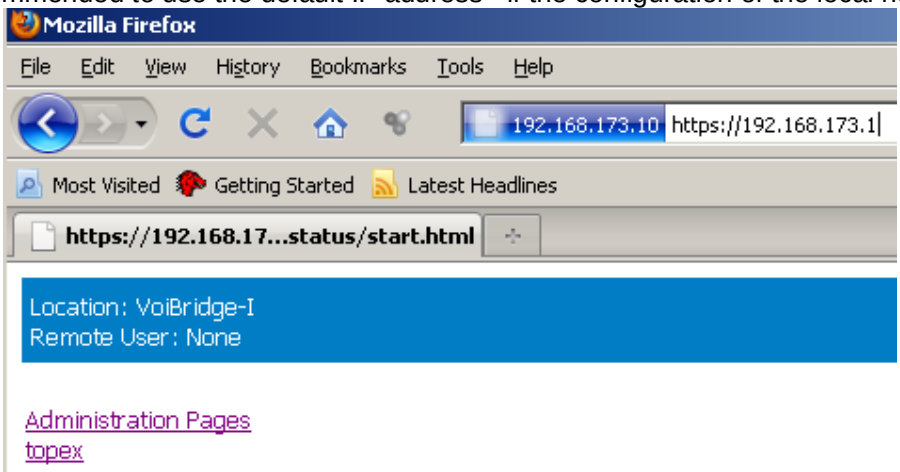
5.1 Required conditions for configuration

To be able to configure the VoiBridge Litedevice, one must be connected to a LAN (Ethernet 10Mb/s or 100 Mb/s) and have access to a computer that is connected **to the same network**, via router or switch. Alternately, one may connect the VoiBridge Lite **directl**y to the PC or notebook that is used for programming, either with a crossover cable or with a straight Ethernet cable. The Web interface may be accessed with any Web browser, **no additional software is needed**.

5.2 Using the web interface

The default address of the webpage of the VoiBridge Lite device is **192.168.173.1.**

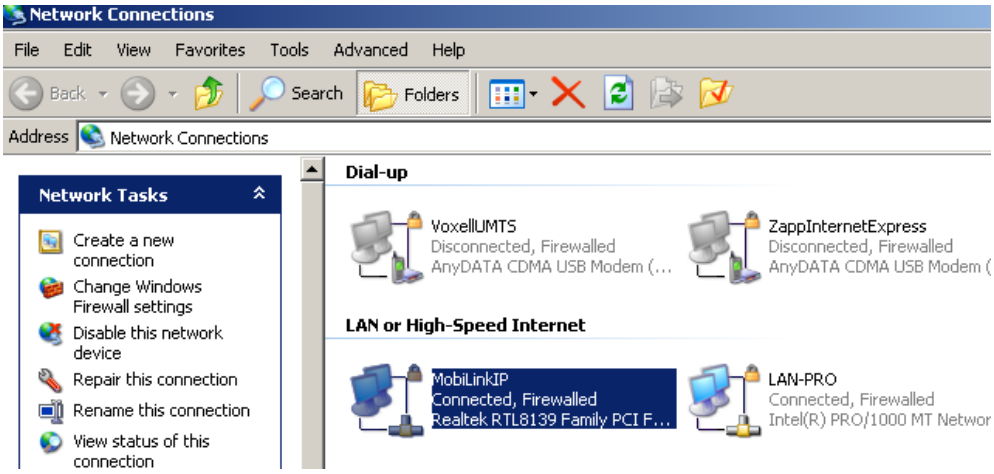
It is recommended to use the default IP address - if the configuration of the local network allows this



5.3. Set up a connection

Establish an Ethernet connection to be used with the VoiBridge Liteunit that needs to be configured. Go to “Network Connections” on the computer and define a connection to be used for the VoiBridge Lite mobile gateway.

Use a significant name, such as “VoiBridge Lite” or ”Topex Gateway” or “VoIP2Mobile”

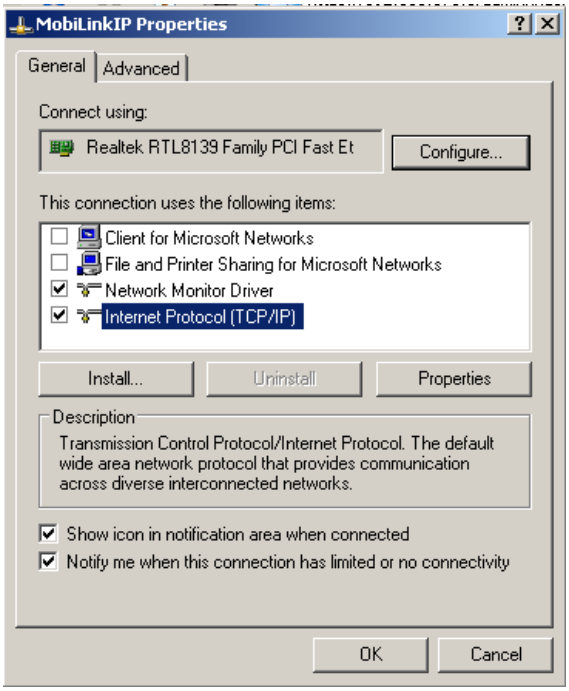


From the network adapters (network cards), select the one which is connected via Ethernet cable to the VoiBridge Liteequipment.

In this example, it is the network board type “Realtek RTL8139 Family PCI Fast Ethernet NIC”

Check the box “Internet Protocol (TCP/IP) and click the button “Properties” to configure your PC.

Configure the connection to VoiBridge Lite either manually or automatically.


MobiLinkIP Properties
General Advanced
Connect using:
Realtek RTL8139 Family PCI Fast Et
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Network Monitor Driver
Internet Protocol (TCP/IP)
Install... Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
Notify me when this connection has limited or no connectivity
OK Cancel

5.4. Automatic IP

The simplest way is to set the network adapter to get its IP address automatically from the DHCP server of the local network, where the VoiBridge Lite unit is connected. The server will provide the PC or netbook with the correct IP address, DNS and Gateway. **This only works if you local network is of the class 192.168.xxx.yyy, compatible with the default IP address of VoIBridgeI4 IP**.

5.5. Manual settings

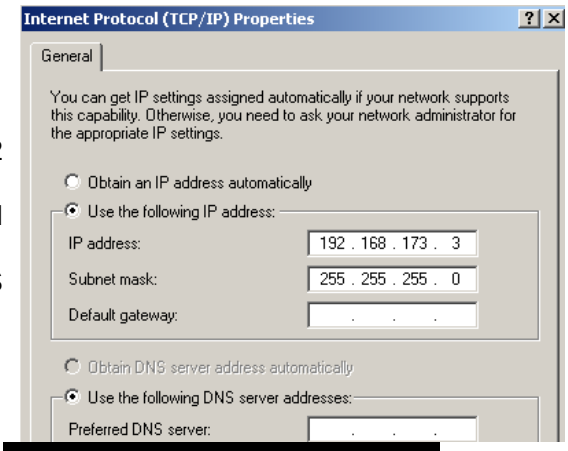
As an alternative, you can set the network parameters manually. By default, VoiBridge Litehas the IP address *192.168.173.1* and the Netmask *255.255.0.0*, settings which are used in the example below.

It does make sense to use manual settings for *network configurations incompatible with the default IP settings*; you **must** use manual settings when the local network has some special requirements, which the automatic configuration cannot satisfy, such as:

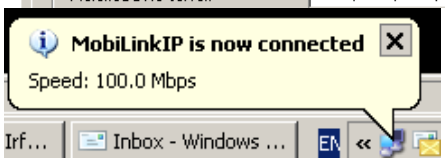
- different range of non-routable addresses used, like 10.*.*.* or 172.16.*.*; In this case you must first set you computer manually to the range of addresses that VoiBridge Lite can “see”, then configure VoIBridgeI4 for the requirements of your particular network, and finally revert to using DHCP in your network, but with VoiBridge Lite now accessible.
- several VoiBridge Lite equipment used in the same LAN. More than two GSM modules may be required, thus several VoIP-4-mobile gateways must be connected in your LAN. In this case the first unit can have the default address, but for the next ones you should assign consecutive addresses, such as *.*.*.2, *.*.*.3, *.*.*.4 etc.

In case of manual settings, in “Internet Protocol Properties” fill in the corresponding values:

- the IP address could be from 192.168.173.2 up to 192.168.173.254
- the Subnet mask could be the standard 255.255.255.0, or wider 255.255.0.0
- the Default gateway and “Preferred DNS server” fields may be lefty empty!


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 173 . 3
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:

In the status bar at the bottom of the screen the link icon should be blinking, and a message will show up: “VoiBridge Lite is now connected”

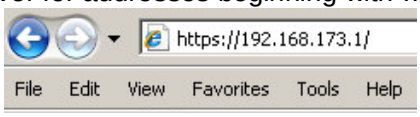


Note: When a Proxy Server is used for the local network, set an exception for the Topex VoIP2Mobile, because otherwise access to the VoIBridgeI4 will not be possible.

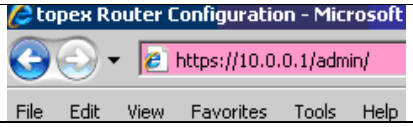
5.6. Connecting to VoIBridge Lite

Enter the IP address of the VoiBridge Lite device (by default **192.168.173.1**) in the list of exceptions for the Proxy server: “Do not use proxy server for addresses beginning with …”

To configure the VoiBridge Liteproduct using the web interface, just open a favorite web browser and type the default IP address as the URL: **https://192.168.173.1**



If connecting to the VoiBridge Lite equipment is not possible because of problems in the settings of the IP address, go back to the factory default settings. Press the “RESET” button for at least three seconds. The equipment reboots and starts operating with **the factory default settings**. These include the IP address 192.168.173.1, allowing you to connect to the Topex VoIP2Mobile in order to configure it. After reaching the configuration web pages, one may change the IP address of the device according to personal requirements.

For instance, you can use addresses in the range https://172.27.168.xxx/ or **https://10.0.0.1**, as shown in this example:	

Hardware Reset

To perform a reset, you must follow the procedure described next, simply pressing the recessed RST button won’t work. So you must follow these steps:

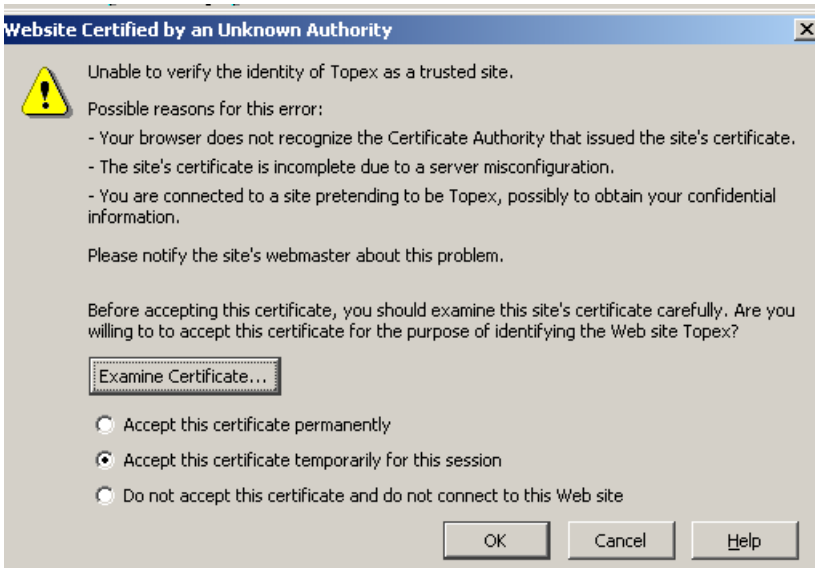
- shut down the VoiBridge Litedevice (unplug the power jack)
- press the RST button and keep it pressed
- power up VoiBridge I4-GSM
- wait until all three LEDs light up in green, orange and red, and then leave the RST button.

Now the equipment performs a reset with return to factory default settings. This does NOT happed if you don’t follow exactly the procedure described above – for instance, if you continue to hold RST depresses after the three indicators have turned on!

Note that the VoiBridge Liteuses a **secure web connection** (https instead of the usual http) so one may get several warning messages for example:

Security Alert
Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.
The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.
The security certificate has expired or is not yet valid.
The name on the security certificate is invalid or does not match the name of the site
Do you want to proceed?
Yes
No
View Certificate

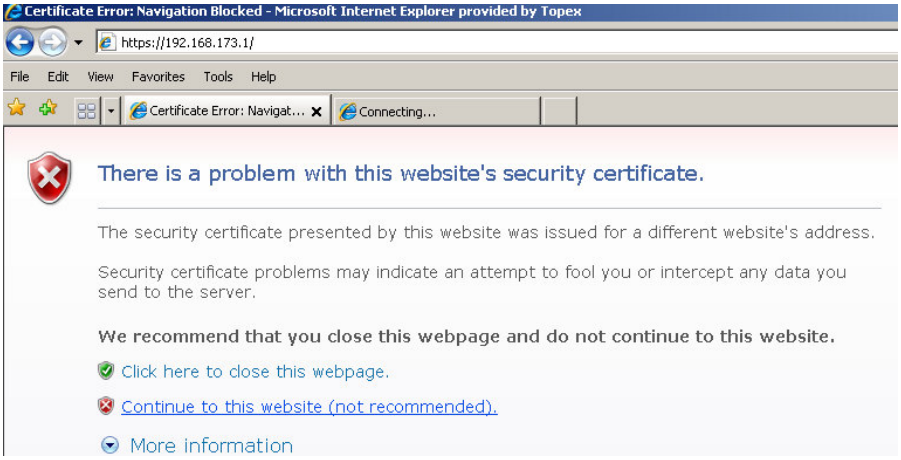
or similar warnings mentioning “Website Certified by an Unknown Authority”:


Website Certified by an Unknown Authority
Unable to verify the identity of Topex as a trusted site.
Possible reasons for this error:
- Your browser does not recognize the Certificate Authority that issued the site's certificate.
- The site's certificate is incomplete due to a server misconfiguration.
- You are connected to a site pretending to be Topex, possibly to obtain your confidential information.
Please notify the site's webmaster about this problem.
Before accepting this certificate, you should examine this site's certificate carefully. Are you willing to to accept this certificate for the purpose of identifying the Web site Topex?
Examine Certificate...
Accept this certificate permanently
Accept this certificate temporarily for this session
Do not accept this certificate and do not connect to this Web site
OK
Cancel
Help

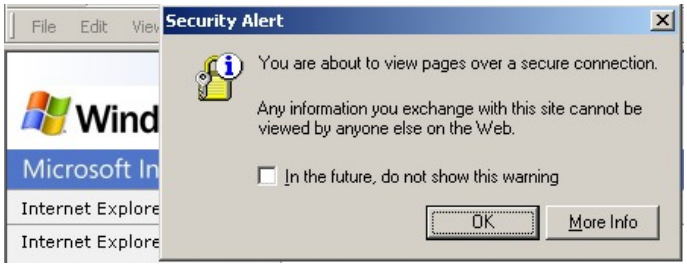
Click „Yes”, „OK” or „Accept” to continue.

Type “OK” to accept the certificate for the VoIBridgeI4 website.

Other “Security Error” messages may warn about “Domain Name Mismatch”, referring to the security certificate.
Again click “OK” to continue.


Certificate Error: Navigation Blocked - Microsoft Internet Explorer provided by Topex
https://192.168.173.1/
File Edit View Favorites Tools Help
Certificate Error: Navigat...
Connecting...
There is a problem with this website's security certificate.
The security certificate presented by this website was issued for a different website's address.
Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.
We recommend that you close this webpage and do not continue to this website.
Click here to close this webpage.
Continue to this website (not recommended).
More information

One may receive the warning “You have requested an encrypted page” or “You are about to view pages over a secure connection”.
This is **norma**l; it shows connection to VoiBridge Liteover a **secure, encrypted link - HTTPS**.


File Edit
Wind
Microsoft In
Internet Explore
Internet Explore
Security Alert
You are about to view pages over a secure connection.
Any information you exchange with this site cannot be viewed by anyone else on the Web.
In the future, do not show this warning
OK
More Info

The secure connection is confirmed by the “padlock” symbol that shows up in the status bar at the bottom of the screen, indicating a secure (encrypted) connection. VoiBridge Liteuses 128-bit SSL encryption to prevent hackers from capturing passwords and sensitive data which is the same security used by banks and the military.

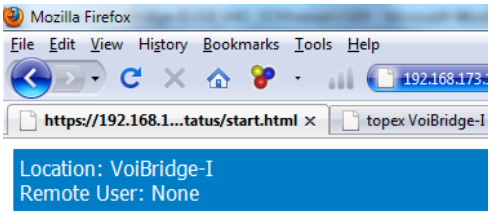
Internet Explorer shows the padlock icon only when everything on the entire webpage is encrypted. But even when the browser doesn't show a padlock, the "https://" address means the data is still encrypted.

Other browsers, such as Mozilla Firefox, will also show a lock icon near the VoIBridgeI4 connection, together with a message that says: “Authenticated by topex”.

5.7. Dual Log-in

From the fist configuration screen of the equipment you may select either:

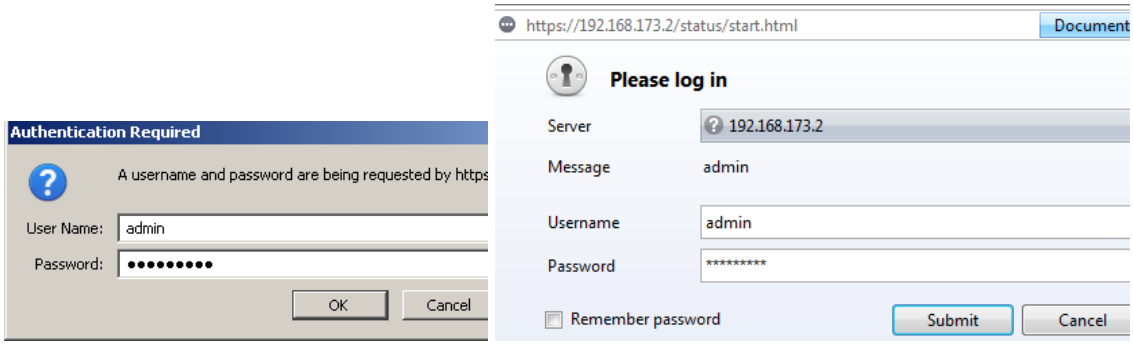
- **Administration Pages** (management, configuration pages)
- **SMS Pages** (send and receive text messages)
- Rohde & Schwarz **Topex** S.A. webpage



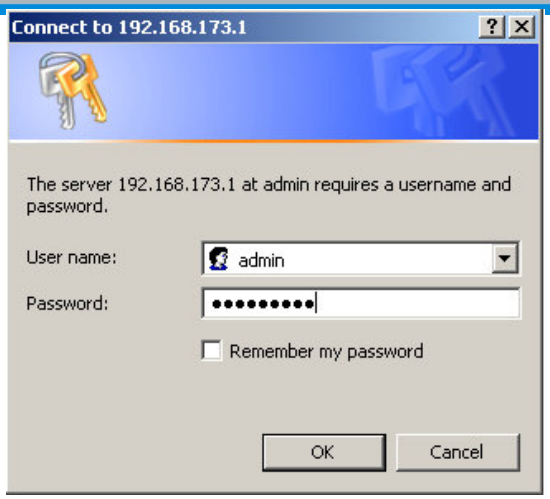
Click the link of interest!

Now you will be asked to enter a user name and a password to access the configuration page of Topex VoIBridge LITE.

To log-in as Administrator, ype the name **“admin”** and associated password **“99admin11”,** as shown:

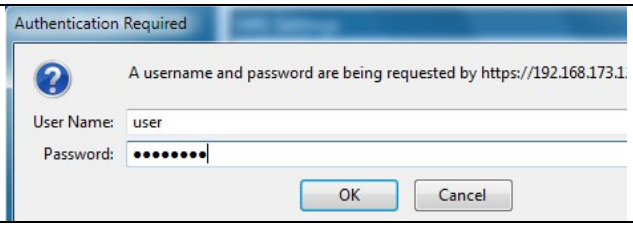


Correspondingly, after log-in you may change the password.



For the administrator of the system network, the default user name is **admin** and the password is **99admin11**.
Later, this password may be changed using the web configuration page, as described in the paragraph about Password.

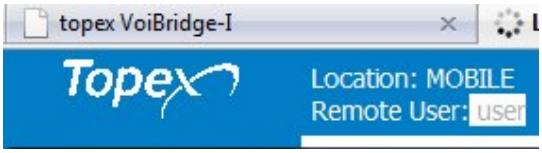
For security reasons, it is strongly recommended to change the default password with one of own choice as soon as possible. Also, do NOT mark the checkbox "Remember my password" in the browser

For a simple User, who has acces only to the pages for sending out and readin SMS messages, the recommended log-in is as "user", with the corresponding default password of "99user11".	

After successful log-in, the log-in name is shown in the "Remote User" field, under the "Location" information:

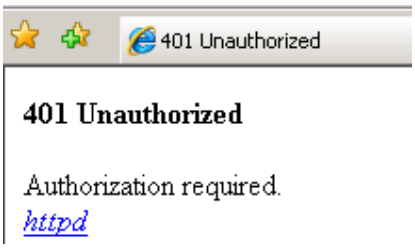
Administrator:

User:



The Administrator "admin" has more rights, access to additional settings, while a simple user cannot perform advanced routing configurations, he can just send and receive SMS messages.

When typing a different user name, or if entering an incorrect password more than three times consecutively, the following error message will be displayed:



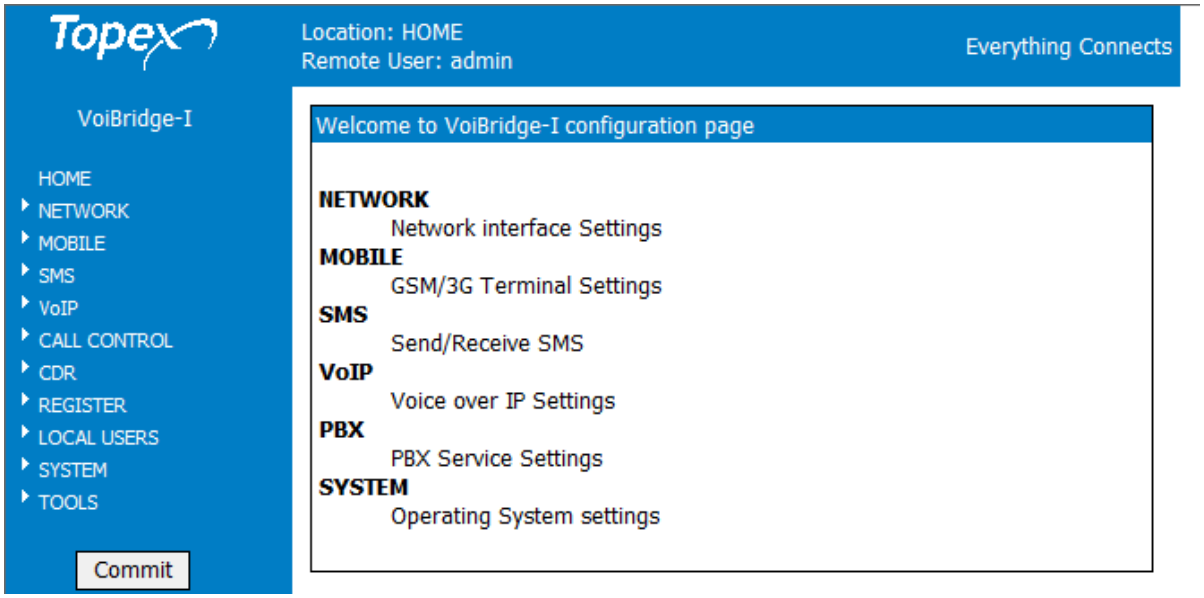
"401 Unauthorized"!

Connect again and be careful to enter the correct name and password.
Following successful log-in, the main administration page for the VoiBridge Lite gateway should be shown on screen.

After the configuration page is loaded, one can change any setting and then click the **Save** button to save it in the current page and **Commit** button to make these changes permanent.

5.8. Menu Items

When you log-in as Admin, you will see the following menu of sub-pages to the left:



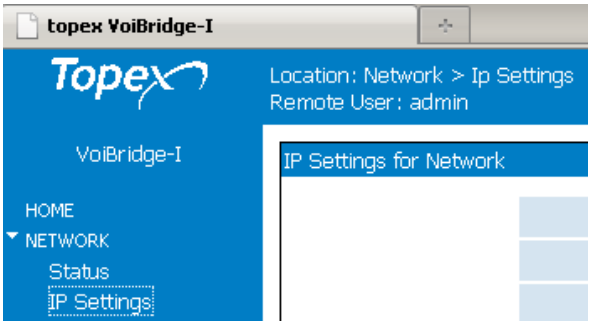
There are several sections (Menu items) on the configuration page of VoiBridge LITE , allowing modifying the settings for:

- **HOME**: this home page for configuration of the equipment.
- **NETWORK**: settings for the local wired (Ethernet) network, including IP address and gateway, default routes, NTP client service and firewall.
- **MOBILE:** parameters for the 2G or 3G mobile voice / data networks, AT commands
- **SMS:** send and receive messages from web interface, performs SMS-2-email and e-mail to SMS conversions, send out group messages, view the state of sent SMS
- **VoIP:** parameters related to the Voice over IP functions;
- **CALL CONTROL:** all settings related to the PBX application running on VoiBridge I4-GSM , who performs all the call management and control tasks;
- **CDR:** Call detail records, persistent files holding detailed listing of the durations of calls performed via VoiBridge-I, for billing purposes
- **REGISTER:** Settings for registration service of remote and local users
- **LOCAL USERS:** parameters for registration service of Local Users (SIP and Mobile);
- **SYSTEM:** Performs operating system functions (update, change of password, logs) and Shows current status;
- **TOOLS:** miscellaneous instruments for debugging and optimization (advanced settings -capture logs and tcpdump, send a ICMP ECHO_REQUEST to network hosts.

Depending upon the actual firmware version running on the VoiBridge Litegateway, one may or may not have access to all these configuration sections or sub-sections (features, services).

The Menu bar is located to the left, and features the button Commit at the bottom.

On top of the web page, next to the Topex logo, is a "Location" indication, which reminds the user exactly where he is on the Web interface. In this example, the section is **Network** and the subsection **IP settings** (IP Settings for the Ethernet connection).



Under the Location information is "Remote User", which shows the name that was used for log-in, User or respectively Admin.

Note:
- There are two types of pages, 'Status' and 'Settings'.
The Status pages only display the state of different items of VoIBridgeI4 IP, while the Settings pages allow you to modify (change) various parameters and settings.
- At the bottom of every 'Settings' page you can see these three buttons:

The button **Save** is used to save the changes performed, the **Cancel** button aborts the changes (closes the window without modifying the current settings), and the **Default** button will reset the values in the current page to the default (initial) configuration.

When changing the settings in any page, press the "Save" button keep these settings. Otherwise, clicking any other link, reaching another configuration page, the modifications performed will be lost.

5.7.1. Examples and Conventions Used in this Manual

Please note that all examples shown in the manual are illustration purpose only, the IP addresses, port numbers, telephone phone numbers, routing rules, prefixes and names of mobile operators were valid for Romania.

You must perform specific configuration according to the actual values for your country, area and mobile carriers!

SCA Mobile 1	+40770000050
SCA Mobile 2	Busy
SCA Mobile 3	+40766000510
SCA MObile 4	+40722004000

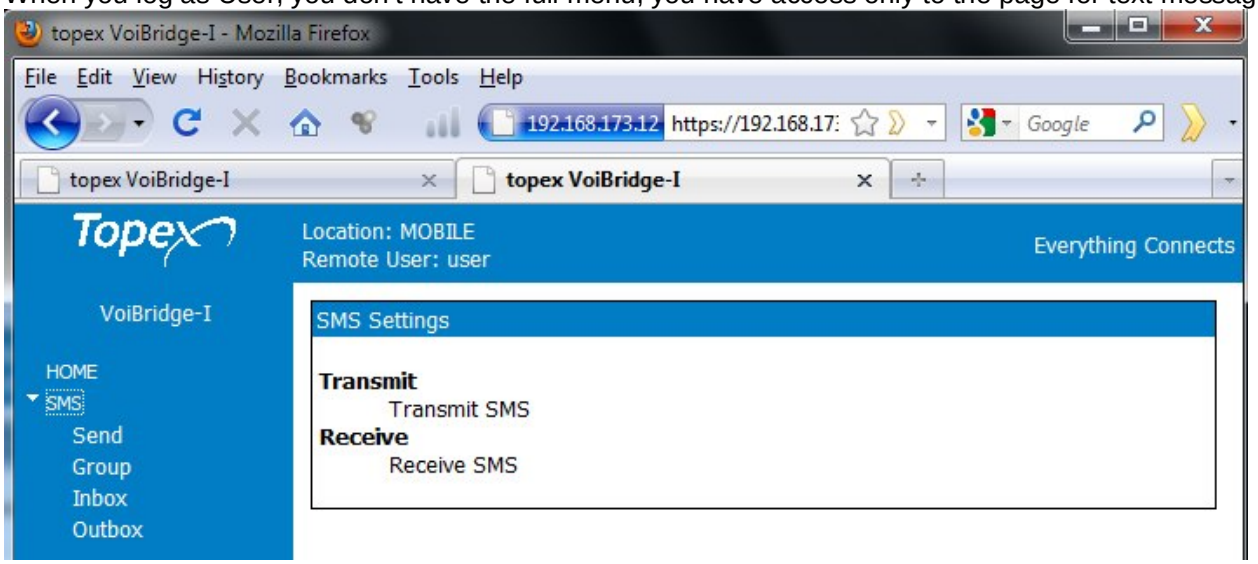
Also, the SCA number are reported by the mobile networks as "+407', the 040 being the international prefix for Romania.
Instead of a plus, you should use the international prefix for outgoing calls, " 00 ', because the plus sign (+) is NOT understood by many phone exchanges. All numbers must be entered with the leading zeroes, to allow a correct routing.

For instance, all mobile phone numbers in Romania are ten digits long, and they begin with '07", while in Italy mobile numbers are always 10 digits long, but they are without a leading zero, they start with a three, "3".

Also, country codes which are represented as +40 or +39 should be entered as "040" or "039" respectively.

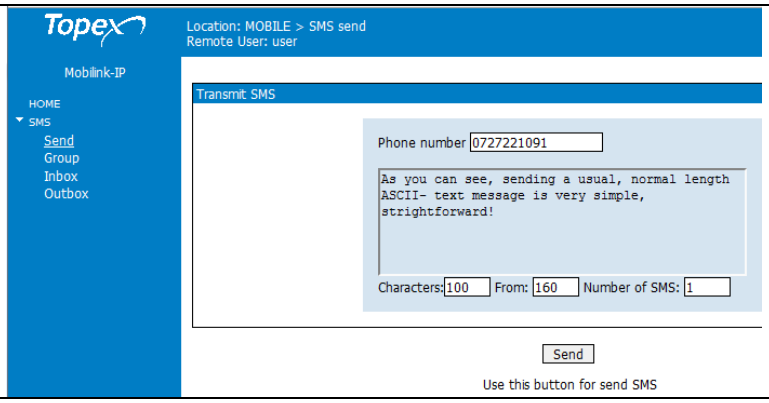
5.8. SMS Pages (log-in as user)

When you log as User, you don't have the full menu, you have access only to the page for text messages:



Moreover, you can only send messages and see the received messages, you don't have access to the Settings for SMS and email-to-SMS features. The four sub-pages of the SMS menu are datailed next:

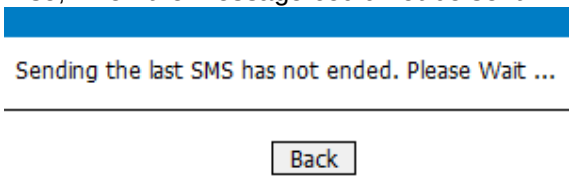
Send
To send out a text message, simply enter the destination phone number, type or copy-and-paste the text of the message, then press the Send button located at the bottom!



You will see the message "**SMS is sending, please wait** …":

Then, in case of successful transmission, you will see the confirmation.

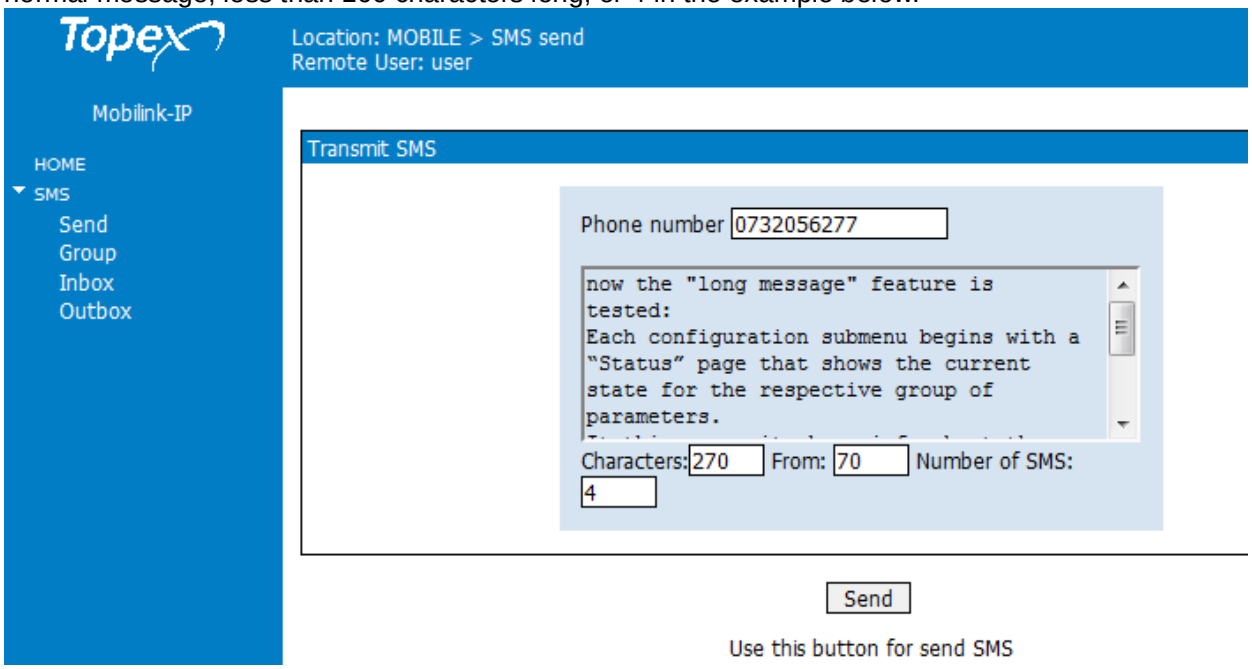
Also, when the message could not be sent immediately, you will see this warning:



Use the Refresh or Reload button of your browser to get out of this page.

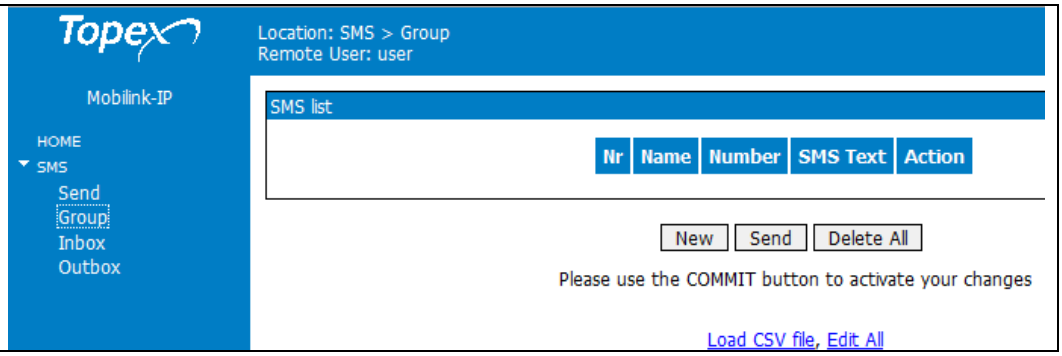
Long Messages

The maximum number of characters for SMS is 160 characters in case of ASCII messages or 70 in case of non-ASCII characters. But with VoiBridge Liteyou can send even longer text messages – they will be broken into several consecutive SMS, and sent one after another to the destination number.
The last box at the bottom of the “Transmit SMS” window shows you the “number of SMS” – this is 1 for a normal message, less than 160 characters long, or 4 in the example below:

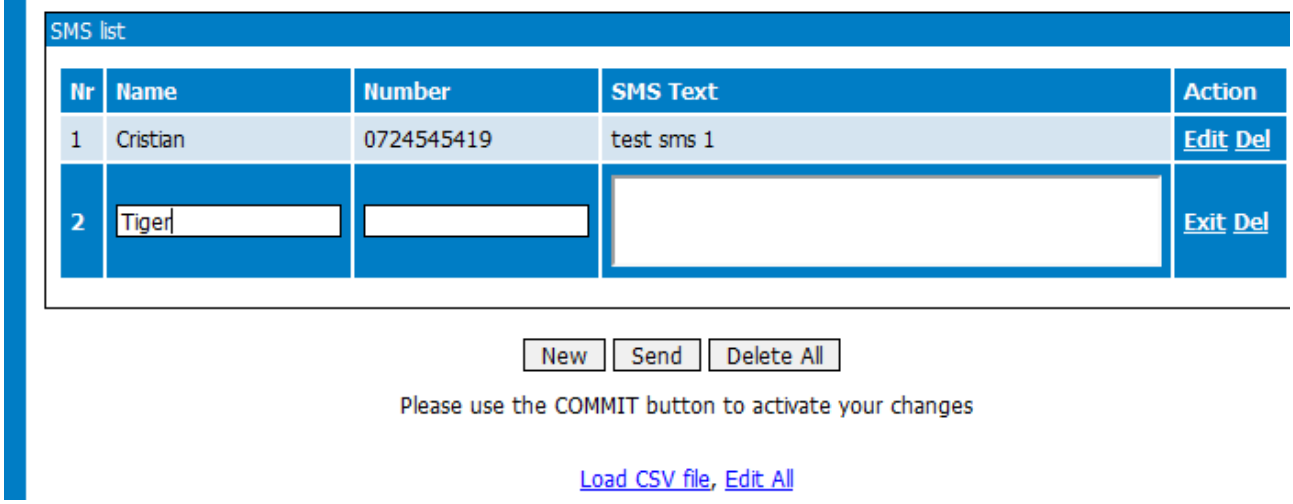


This means that the long message, with 270 non-ASCII characters, will be sent out as a succession of four SMS messages with a maximum length of 70 characters each!

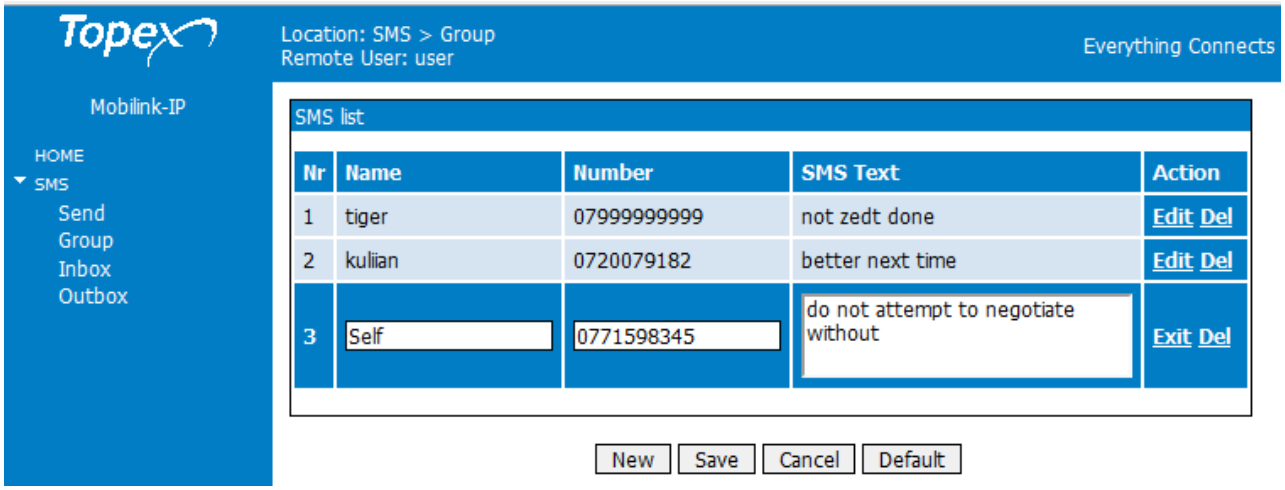
Group
This feature allows you to send group messages, that is text messages to several phone numbers, in single operation.



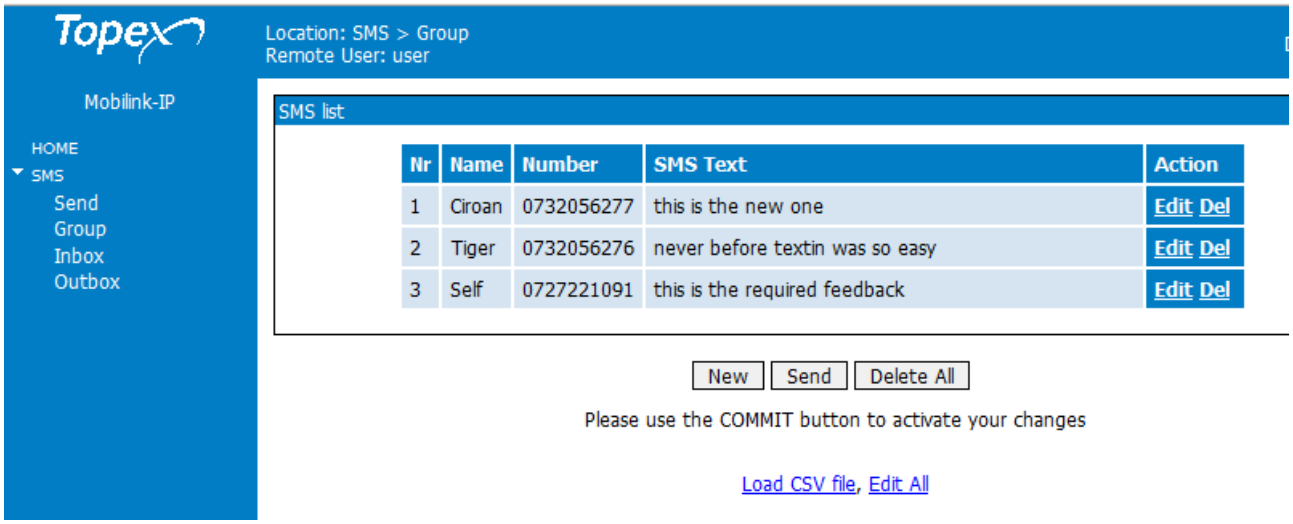
At first, the SMS list is empty, use **New** to create a new record and **Edit** to modify it:
The first field is **the name** of the recipient of the message. This name is meaningful for the human operator only, VoiBridge Litehas no use for it. The next field is the destination **phone number**, and the last one, **the text** of the SMS message to be transmitted:



After you finished editing all fields in a row, the buttons at the bottom change, allowing you to **Save** the edited messages or to abort the current editing with **Cancel**.

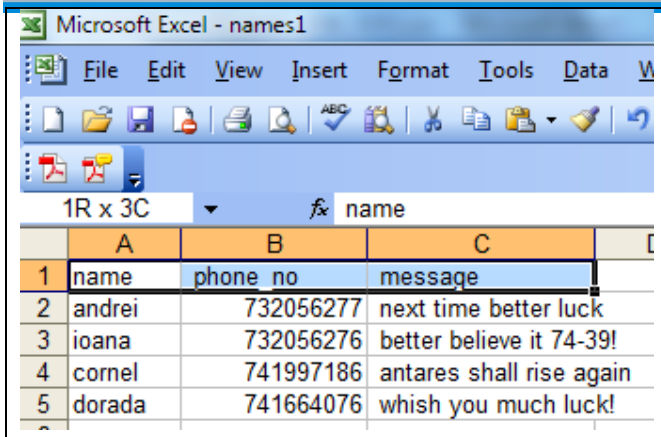


When you have finished editing all rows, the buttons change again, now you have the option to press **Send** to transmit the messages, or **Delete All** to delete all the rows in a single operation.



Load CSV

One if the links at the bottom of is “Load CSV file”.

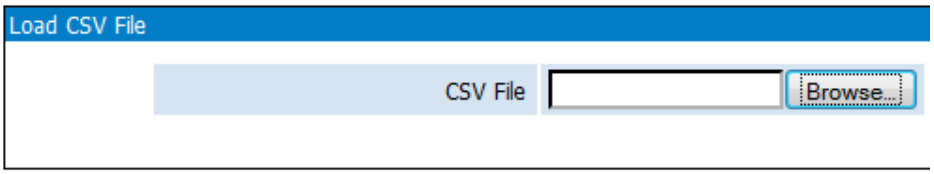

Microsoft Excel - names1
File Edit View Insert Format Tools Data W
1R x 3C
name
A B C
1 name phone_no message
2 andrei 732056277 next time better luck
3 ioana 732056276 better believe it 74-39!
4 cornel 741997186 antares shall rise again
5 dorada 741664076 whish you much luck!

You can use it to load a **CSV** (comma separated value) file previously created that holds the names, telephone numbers and messages to be sent.

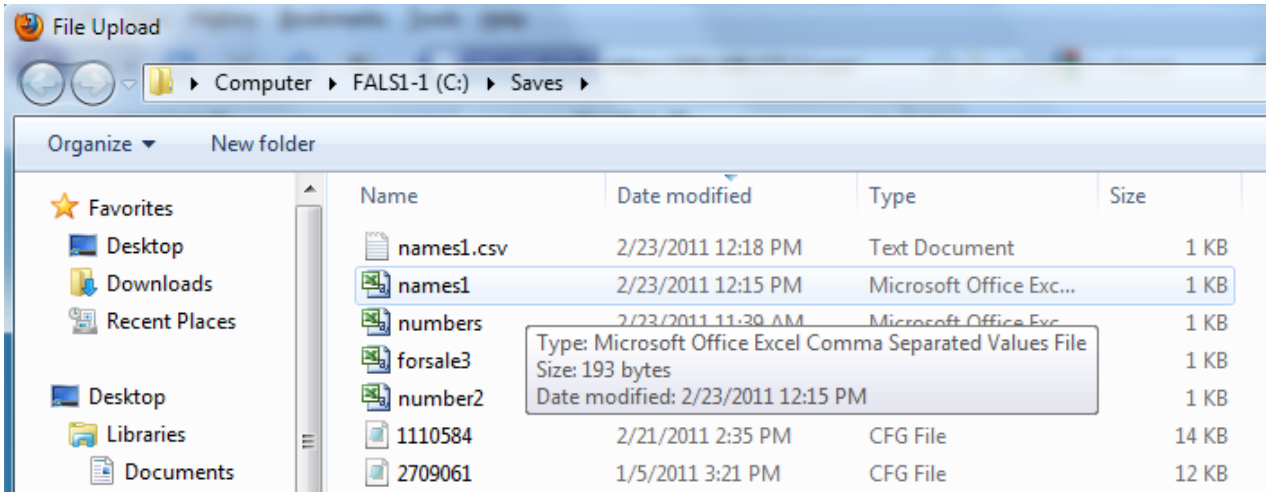
Such a file may be created by using Microsoft Excel or a simple text editor, such as Notepad.

The values for name, telephone number , and text of the message must be separated by commas.

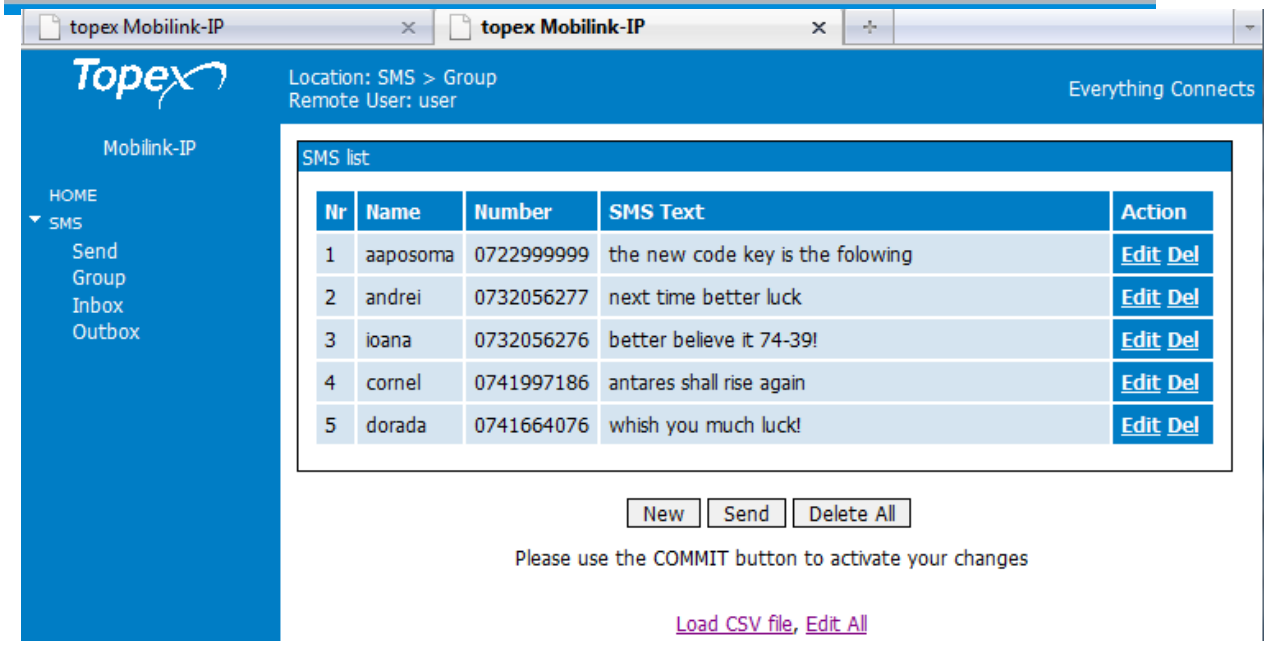
Use the **Browse** button to look for the .csv or .txt file to be loaded:



Navigate in the folders of your computer, and select the .csv file of interest to you:



Then use the button **Load** to load the respective file into the VoiBridge Lite equipment.

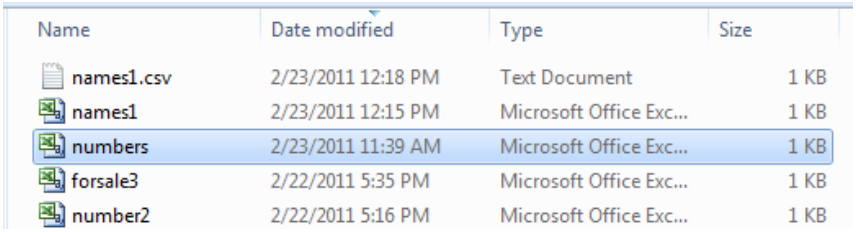


You can review, edit or delete each row of the SMS list (every line corresponds to a SMS message), then press Send to send out all the messages.
Of course, the transmission won't be simultaneous, VoiBridge Lite sends out the messages one after another, starting with the one located at the bottom.

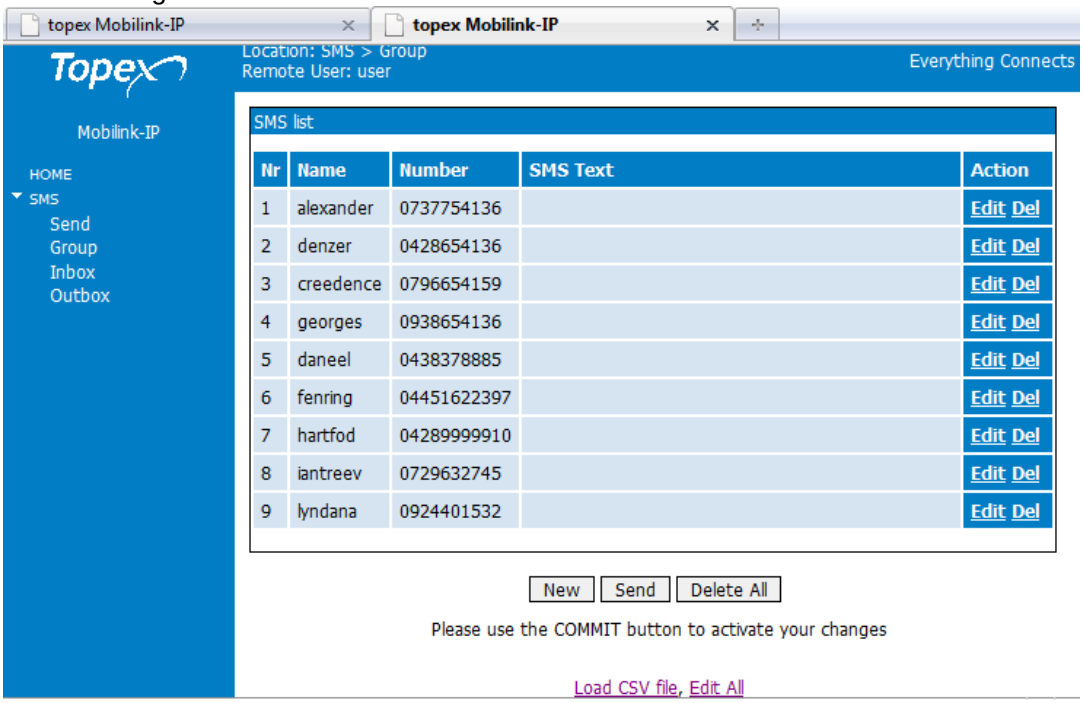
Following a successful transmission, if you no longer need the messages, you can delete all the rows in the SMS list by using the button "**Delete All**" located at the right, below the SMS list.

Group sending

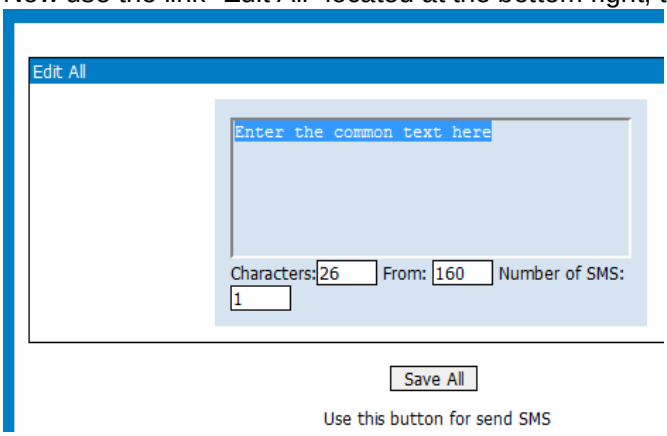
A variant of the group SMS operation is when you need to send a single message to several recipients (phone numbers). This is a particular case, when the CSV file contains only names and telephone numbers, the “text” filed is empty.
To send out the same text message to several destinations, load the CSV file with the corresponding numbers:


Name
Date modified
Type
Size
names1.csv 2/23/2011 12:18 PM Text Document 1 KB
names1 2/23/2011 12:15 PM Microsoft Office Exc... 1 KB
numbers 2/23/2011 11:39 AM Microsoft Office Exc... 1 KB
forsale3 2/22/2011 5:35 PM Microsoft Office Exc... 1 KB
number2 2/22/2011 5:16 PM Microsoft Office Exc... 1 KB

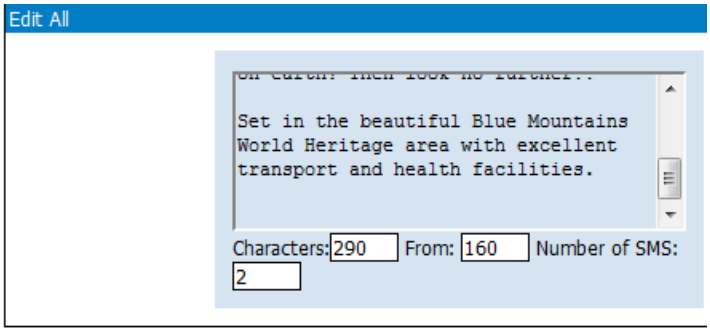
You will see a SMS list with names and corresponding telephone numbers, but without any text for the SMS message to be sent out:



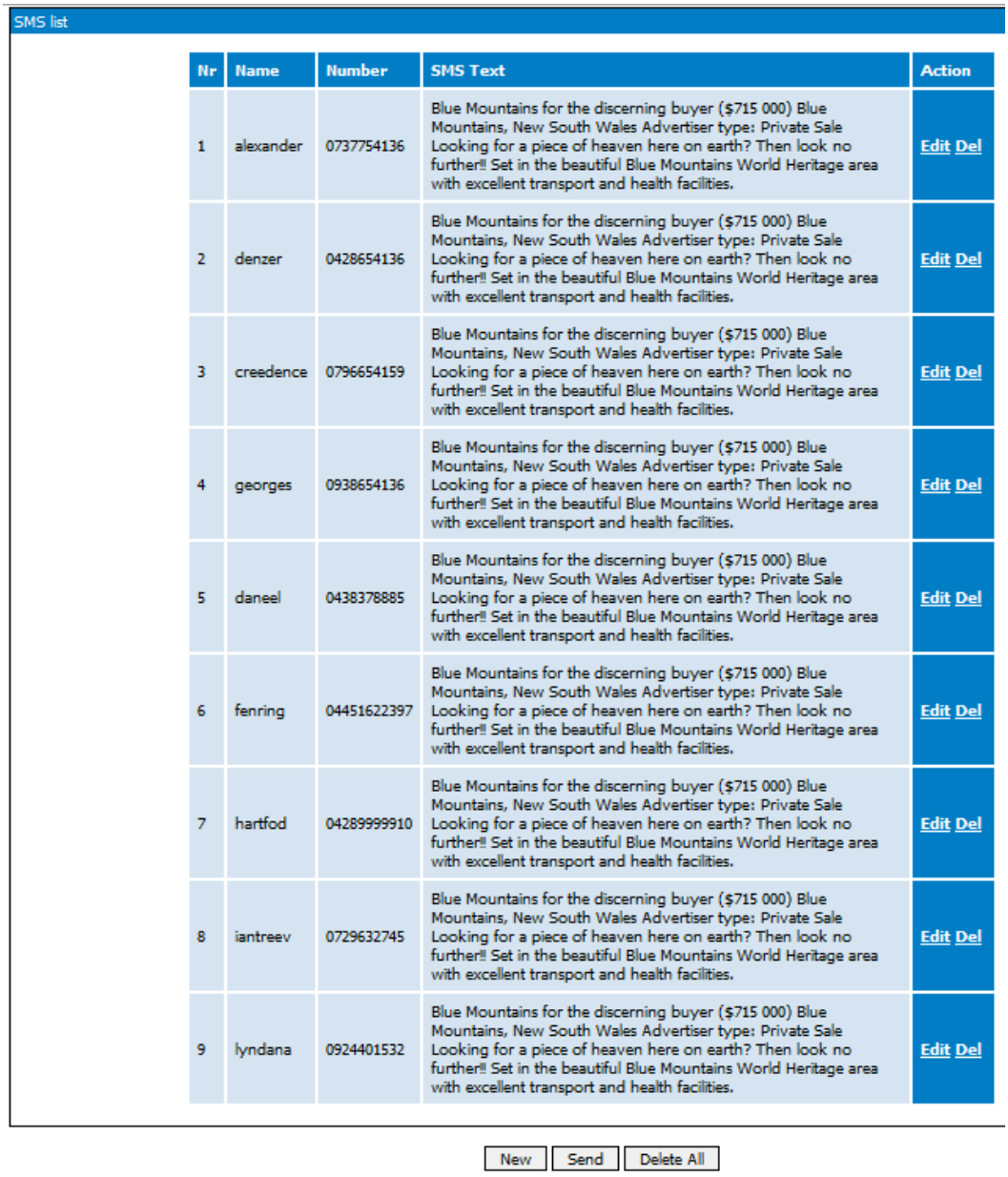
Now use the link “Edit All” located at the bottom right, to edit all the SMS Text fields at once:



In this window, you can either enter the text by typing, or paste it from a location where you copy the text of interest:



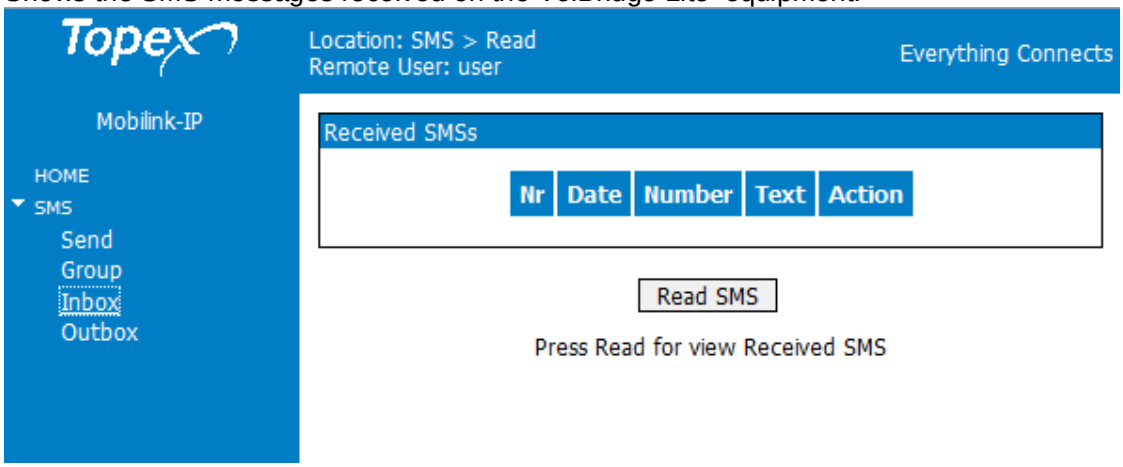
Use “Save All” button to save this text into **all** the rows of the SMS list, as shown in the next example:



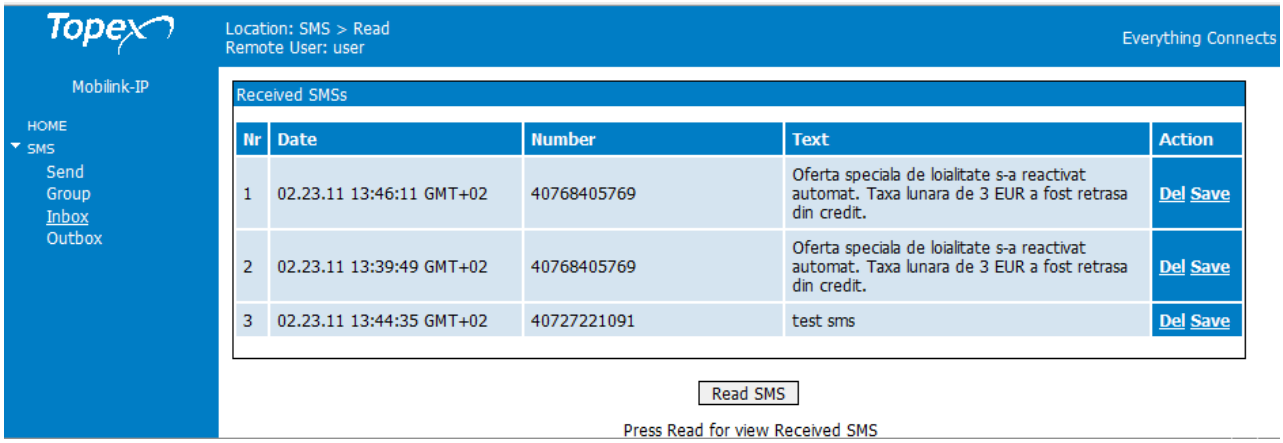
After a final review, where you can edit or delete the current rows or add a new one, press the button **Send** at the bottom of the list to send out the respective text to all the phone numbers in the list!

Inbox

Shows the SMS messages received on the VoiBridge Lite equipment.



Press the button “Read SMS” to see the list of text messages received by the SIM cards of the VoiBridge Liteequipment.



Date: shows not only the date, but also the time when the message has been sent, up to seconds. (Also, the time zone, such as GMT+2 in case of Bucharest).
Remember, this is not the time when the SMS was received by VoiBridge Lite, but rather when it has been transmitted, usually set by the mobile carrier.

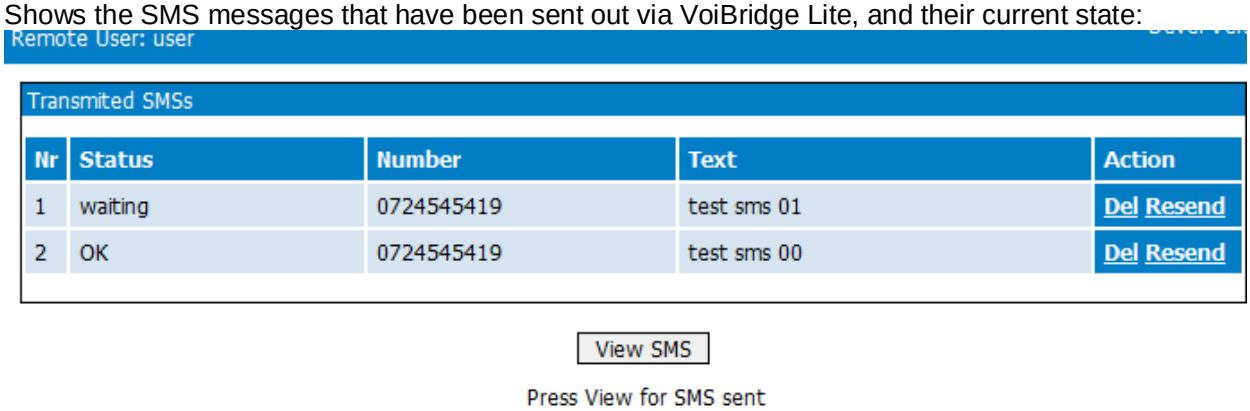
Number: phone number that has sent the SMS.

Text: the text of the message.

You can Delete or Save each of the received SMSs. These messages are stored in the volatile memory of the equipment, so if one SMS is of high interest, it should be save onto your computer, because it will be lost each time VoiBridge Lite is re-booted.

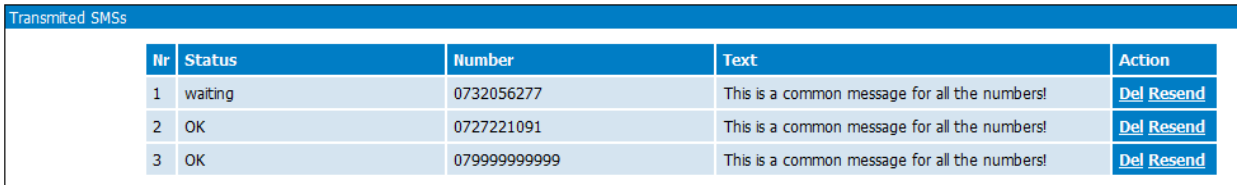
Outbox

Shows the SMS messages that have been sent out via VoiBridge Lite, and their current state:

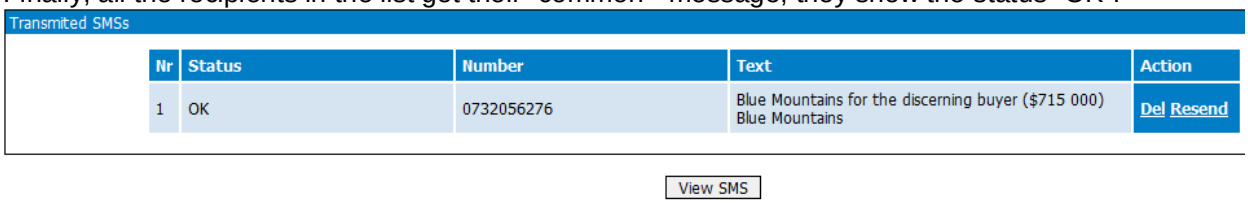

Remote User: user
Transmited SMSs
Nr Status Number Text Action
1 waiting 0724545419 test sms 01 Del Resend
2 OK 0724545419 test sms 00 Del Resend
View SMS
Press View for SMS sent

Since the messages are sent out starting with the one at the bottom, it is normal that SMS 2 has already been successfully sent, hence the message “OK”, while SMS 1 is still “waiting” to be transmitted.

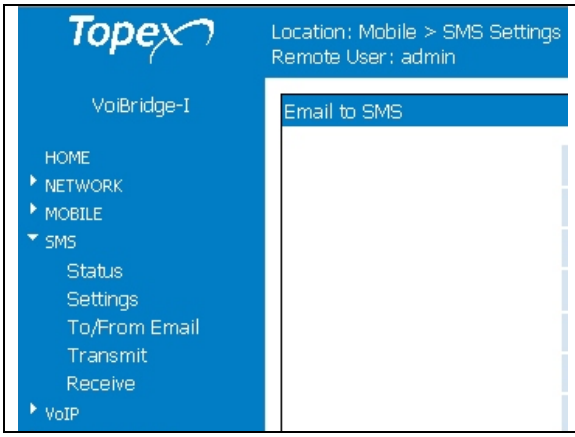
In the next example, while sending out a “group” message (same text sent towards three recipients), the SMS has been successfully sent to 2 and 3, while 1 must still wait – his message is in the process of being transmitted:


Transmited SMSs
Nr Status Number Text Action
1 waiting 0732056277 This is a common message for all the numbers! Del Resend
2 OK 0727221091 This is a common message for all the numbers! Del Resend
3 OK 079999999999 This is a common message for all the numbers! Del Resend

Finally, all the recipients in the list get their “common” message, they show the status “OK”:


Transmited SMSs
Nr Status Number Text Action
1 OK 0732056276 Blue Mountains for the discerning buyer ($715 000) Blue Mountains Del Resend
View SMS

5.8.1. Administrator Pages (log-in as admin)



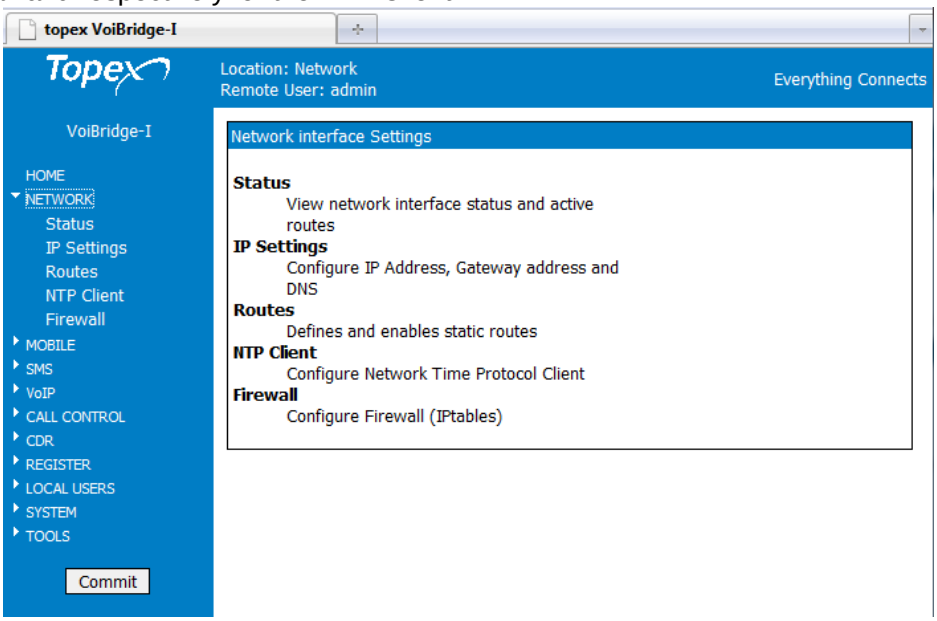
Loging-in as Admin

When you log-in to VoiBridge Liteas administrator (username ***admin*** and corresponding default password ***99admin 11***) you have access to all the features and settings.

The first configuration page is NETWORK.

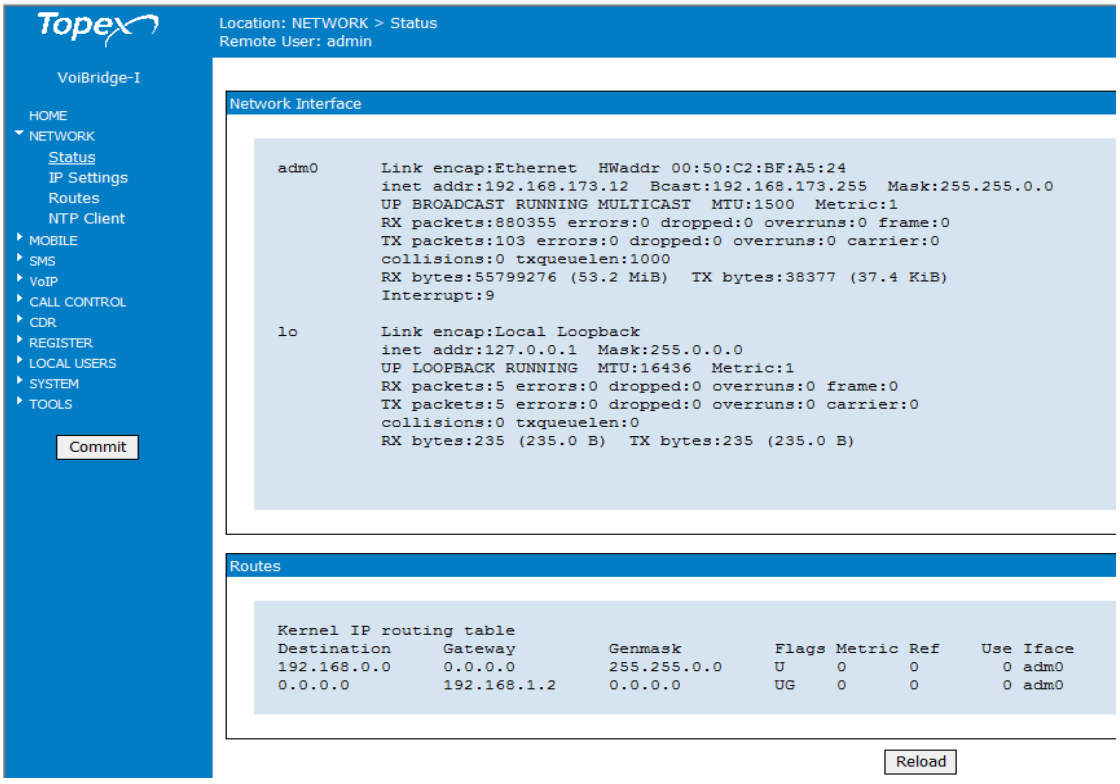
5.9. NETWORK

This group features the pages of settings related to the local wired Ethernet network, for IP, routes, SPI firewall and respectively for the NTP Client:



5.9.1. Status

Each configuration submenu begins with a “Status” page that shows the current state for the respective group of parameters. It this case, it shows info about the state of the Ethernet interface and the current static routes:



Network Interface

This is the detailed information about the Ethernet network interfaces of the VoiBridge I4-GSM. Since it features a switch, all four physical interfaces show a single logical interface, adm0.

Network contains two similar groups of network parameters:

Adm0

```
adm0      Link encap:Ethernet  HWaddr 00:50:C2:92:CC:4A
          inet addr:192.168.173.4  Bcast:192.168.173.255  Mask:255.255.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1163193 errors:0 dropped:0 overruns:0 frame:0
          TX packets:34338 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:66834569 (63.7 MiB)  TX bytes:3935432 (3.7 MiB)
          Interrupt:9
```

Here are shown details about the real Ethernet interface (four-port switch).
These include MAC (hardware, physical address), Internet address (logical address), Broadcast, subnet mask, MTU value, metric, statistics (packets, errors, collisions, mega bytes transferred) for the reception (RX) and respectively transmission (RX).

lo

Local Loopback interface

```
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:886 errors:0 dropped:0 overruns:0 frame:0
          TX packets:886 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:43809 (42.7 KiB)  TX bytes:43809 (42.7 KiB)
```

The same parameters are shown for the virtual, local loopback interface, at the standard address for loopback, “127.0.0.1”. Since it is a loopback interface, the number of bytes sent out will always be identical to the number of bytes received.

Routes

Shows the current routes, taking the information from the Kernel routing table for IP

Routes

```
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
172.168.0.0     192.168.1.1     255.255.0.0     UG    0      0        0 adm0
192.168.0.0     0.0.0.0         255.255.0.0     U     0      0        0 adm0
0.0.0.0         192.168.1.2     0.0.0.0         UG    0      0        0 adm0
```

Or:

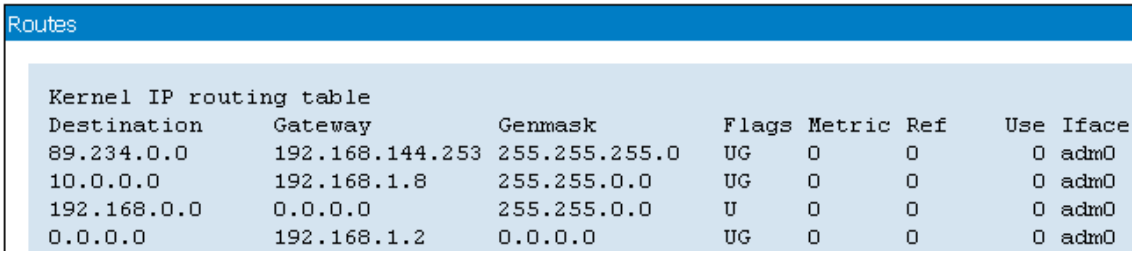
Routes

```
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
192.168.0.0     192.168.1.2     255.255.0.0     UG    0      0        0 adm0
192.168.0.0     0.0.0.0         255.255.0.0     U     0      0        0 adm0
0.0.0.0         192.168.1.2     0.0.0.0         UG    0      0        0 adm0
```

The Static Route Display shows the current routing table of the VoiBridge I4-GSM

Note that this is the Status page for network - the existing static routes for the VoiBridge Lite (default routes, gateway, masquerading if used, flags, metric, interface used, etc) can be seen and changes cannot be performed.
If needing to change the routes, go to the section 'Routes' of this page, for defining and modifying routes.

The routes are shown from the top downwards from the most specific to the least specific.



Destination - the destination network or host system. Declaring a default route means adding a route with 0.0.0.0 as its destination. In case of networks, the last two groups of figures contain only the digit zero.

Gateway - the access gateway the respective routing entry points to. If this field has only zeroes (0.0.0.0) or an asterisk (*), this means no gateway is used, the destination network is connected directly to the computer.

Genmask - the bit mask applied to the destination. It shows the "generality" of the route.

Flags - indicator flags that describe some characteristics of the route. Such flags are:

U - the route is active and operating, the interface to be used is up;

G - the route uses an external gateway (the network interfaces of the system supply routes to the networks which are directly connected, all other routes use external gateways. Thus, the networks which are directly connected don't have the G flag, but it is activated for all other routes).

H – it is a route towards a single host instead of a network.

D - the table entry has been generated dynamically, either by a routing protocol or by an ICMP redirect message (see section 3.5).

M – this route was modified by a dynamic routing protocol;

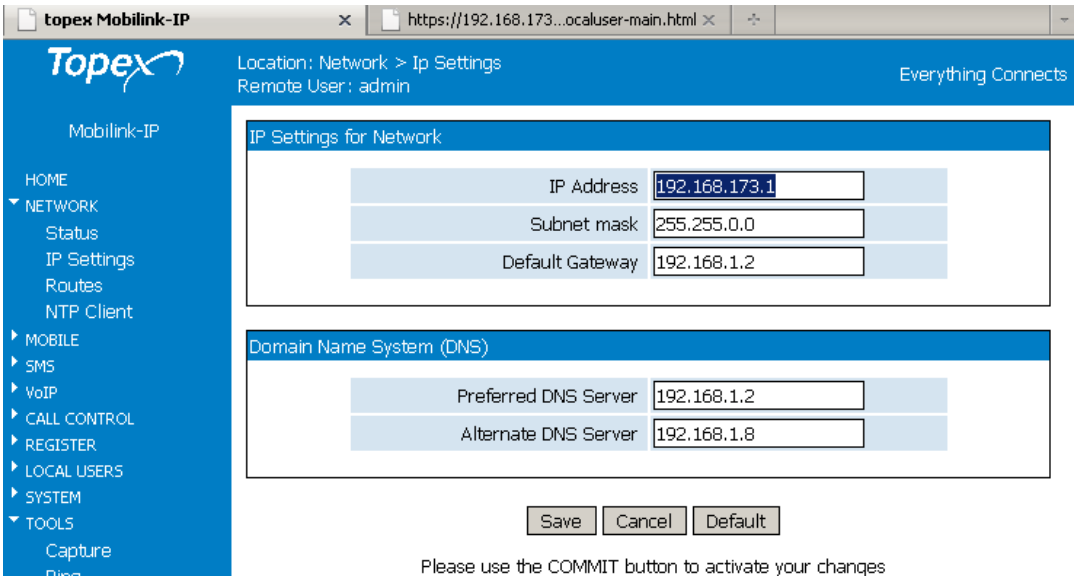
R - the route was re-activated following update by dynamic routing protocol. Routes may be configured as passive or static even when a protocol for dynamic routing is used.

Other fields refer to the **Metric** (routing cost), the number of references to this route, etc,

Finally, **Iface** is the name of the network interface used for this route.
For the Ethernet interfaces there is currently a single name, respectively adm0.

5.9.2. IP Settings

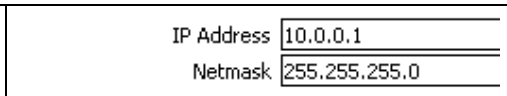
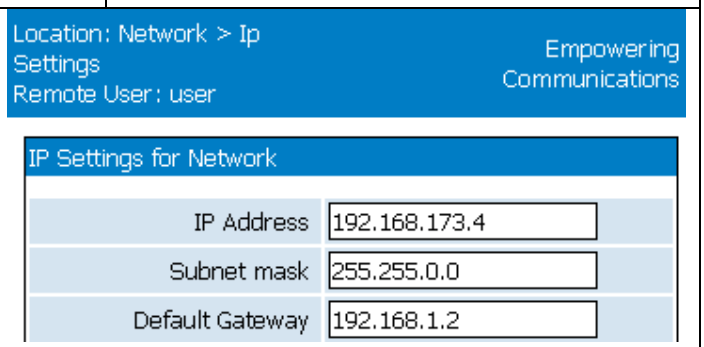
Here one can set up the parameters for the equipment in the local network. Settings for the LAN IP of the VoiBridge Lite gateway are the standard ones: IP Address and Netmask, Gateway (if used), Preferred and Alternate server for DNS.



These settings control how the Topex equipment connects into the local wired (Ethernet) computer network.

IP settings for network

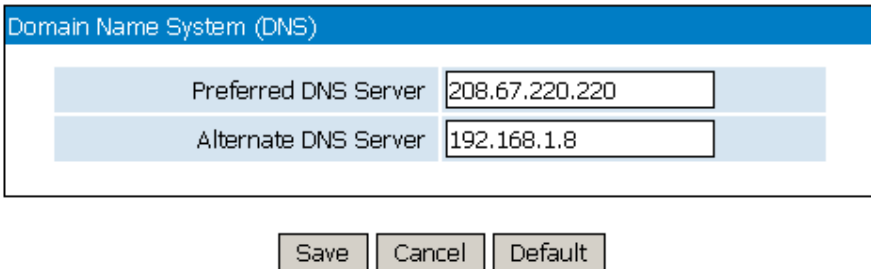
The default address value is 192.168.1.1 and the netmask is 255.255.255.0.

One may change these default settings, if the configuration of the network requires this, for instance to *10.0.0.1* in this example:	
Usually the IP address allocated for VoiBridge Liteon the LAN side is a **non-routable** (internal) address, as the ones shown here, in the range 192.168.xxx.yyy:	 Location: Network > Ip Settings Remote User: user Empowering Communications IP Settings for Network IP Address 192.168.173.4 Subnet mask 255.255.0.0 Default Gateway 192.168.1.2

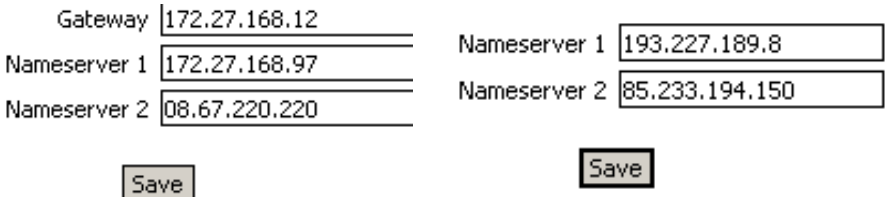
When changing this IP address, VoiBridge Litetries to redirect the web browser to the new address automatically. If it does not succeed, update the configuration page by entering the new IP address in the browser, such as https://192.168.173.4 in the above example and pressing the Reload button of the browser.

DNS Servers:

Select which primary and secondary servers for DNS (Domain Name Service) will be used. The Name Servers may be from the local network (address 192.168.x.y) as the second entry in the following example or from the public network, the great Internet, such as 208.67.220.220 in the example below:



Other name-server examples

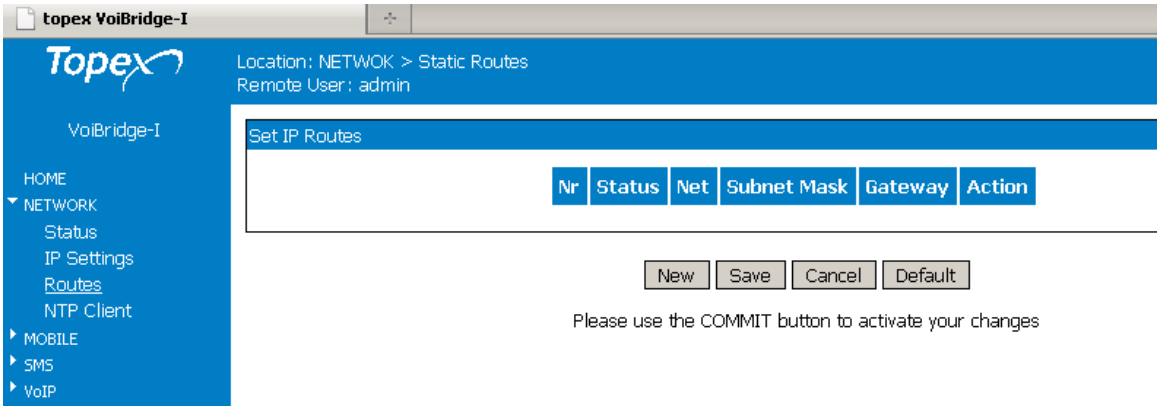


Saving Save Cancel Default	Use the "Save" button at the bottom of the page to save the settings, Cancel to abort or default to return to the defaults for the IP address page, and then "Commit" (down on the column to the left of the screen) to make permanent the IP settings

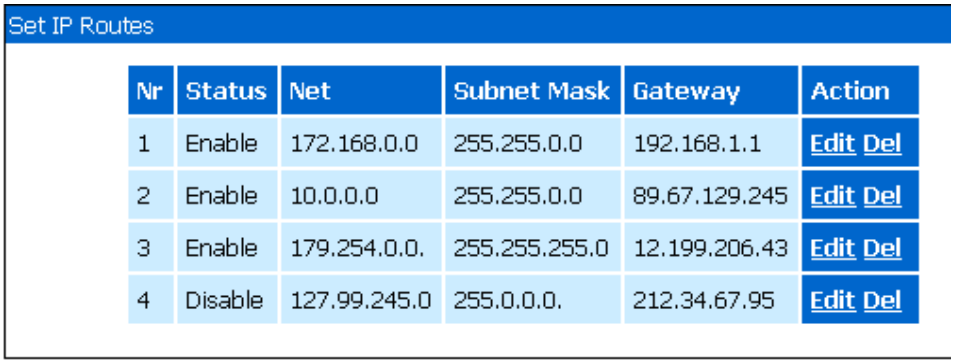
5.9.3. Static Routes.

Routing means determining and prescribing the path or method used for forwarding data packets. This option page is concerned with defining fixed (static) routes. It shows the current routing table for VoiBridge Lite and allows defining several static routes.
The routes established here will be shown in the page Network ->Status-> Routes.

At fist, the list is empty.

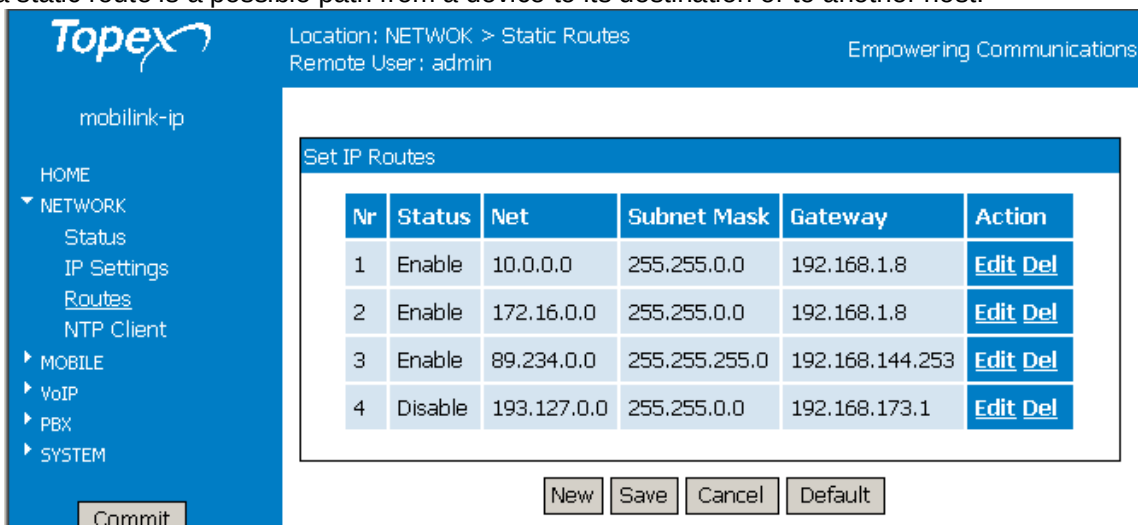


"Set IP Routes" lets one edit, remove or add routes in the table shown below:



Static Route Definition

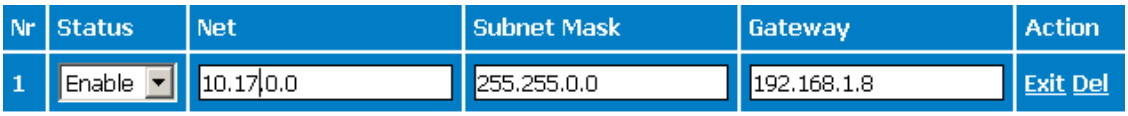
Such a static route is a possible path from a device to its destination or to another host.



One **must** insert predefined rules of routing for the VoiBridge Lite in case of appending one or several network devices such as routers behind the VoiBridge Lite device, to share the same connection to the mobile Internet. This way the **VoiBridge Lite** gateway will be able to know where it may deliver the data packets coming from the Internet with different destination IP addresses.

Buttons

Use **New** to create a new row (route definition), **Edit** to edit an existing definition, **Exit** get out of the table, and **Save** to save the changes. **Del** erases from the table an existing route.



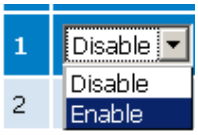
Defining a route

Net: Address of the remote network or host to which you want to assign a static route. Notice that it is not an IP address, like the one for the Topex VoIBridgeI4 device, but the address of a network, so that the last two groups of figures will always be zero.

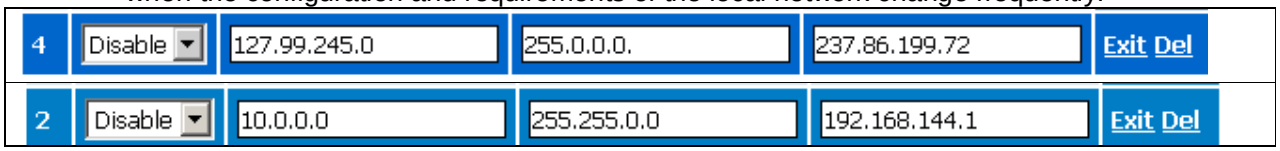
Netmask: the subnet mask determines which portion of the destination IP address is the network part and which is the host part.

Gateway: the gateway to be used, enter here the IP address of the router which allows for contact between VoiBridge Lite and the remote host or network.

Enable:
Each of the routes defined or edited can be individually enabled or disabled.
By default, this field is set to Disabled, meaning that the routes are saved, but they are not active.



This is especially useful when configuring several VoiBridge Litedevices one after another, or when the configuration and requirements of the local network change frequently.

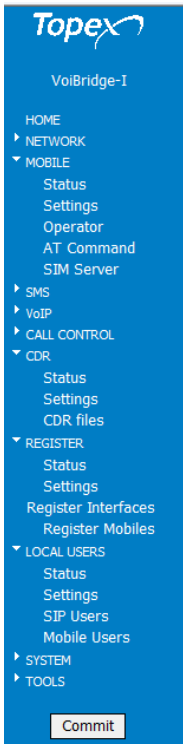


In this case you can pre-define several routes, even if they are not currently in use, and leave enabled only the ones strictly necessary for the current configuration.

The other routes are available, they may be edited and enabled as the need arises.

5.9.4. Commit

The “Commit” option described here is not specific to the Network, but it is rather a general option for Topex devices.



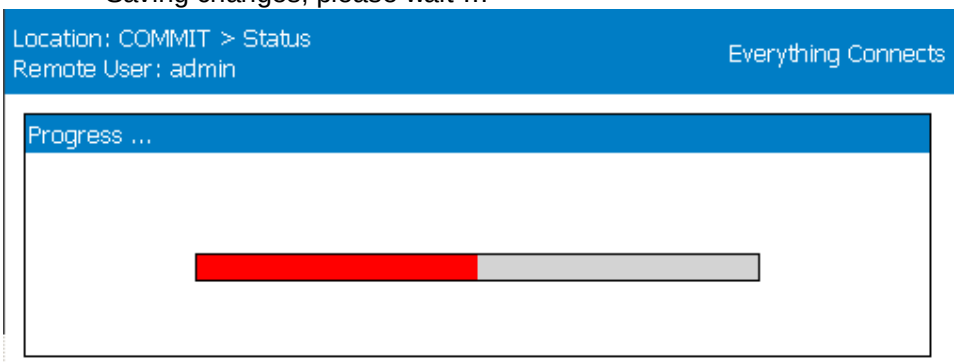
If configuration changes were performed, using the “Save” button is not enough since it saves the modifications only into the temporary memory of the VoiBridge I4-GSM .

Always press the “Commit” button if these changes need to be permanent.

This button is located at the bottom of the Menu list, to the left side of the screen.

There is a “Commit Settings” message and, underneath it, a red progress bar over black or grey background which says:

“Saving changes, please wait …”



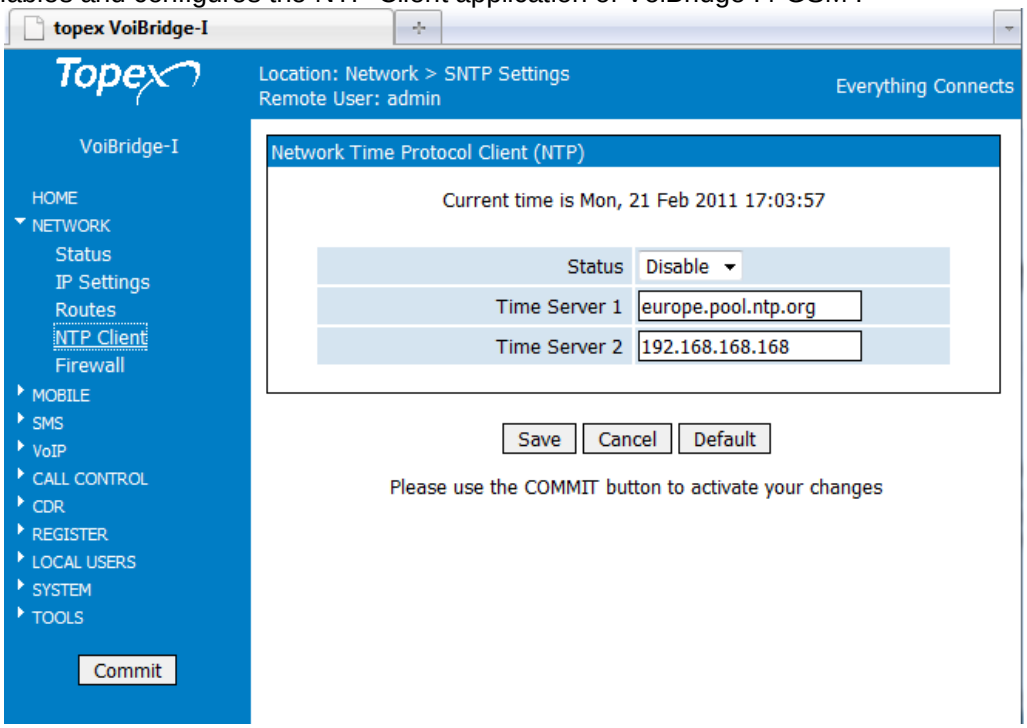
Saving will take some time, because the changed settings are saved into permanent (Flash) memory of the equipment.

The VoiBridge Literesets, and when it starts again, the new set of parameters will be active.

Warning: While committing changes, when resetting the VoiBridge I4-GSM or while loading a new program image, the equipment will cease operation for a few seconds.
This means all connections: mobile, VoIP, local network etc. will be interrupted, but they will resume when the VoiBridge Lite starts again.

5.9.5. SNTP Client

Enables and configures the NTP Client application of VoiBridge I4-GSM .



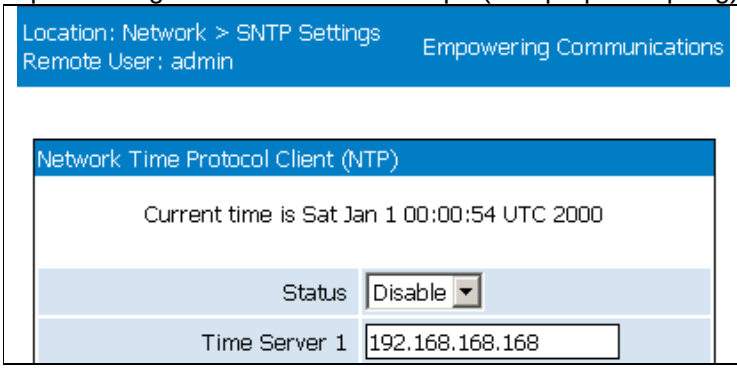
The **Simple N**etwork **T**ime **P**rotocol is used to update the real-time clock in a computer, over Internet.
It uses one or several remote dedicated Time servers on the Internet that accurately synchronizes the system date and time.

Status of NTP Service: Enabled or Disabled; by default it is disabled

Server: enter the full name of the NTP server in need to use, such as “utcnist.colorado.edu” or “ro.pool.ntp.org”.

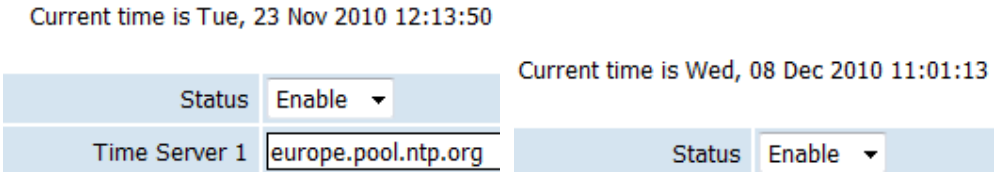
The “Current time” indicator shows the current UTC time (Universal Coordinated Time) of the system, with millisecond precision.

Notice there are two fields, for Time Server 1 and 2. You may use severs from different network classes, for instance one in the local network of the company, such as 192.168.168.168 in the examples below, and the other on the public Internet, like utcnist.colorado.edu for USA or specific or generic servers for Europe (europe.pool.ntp.org) or Romania.

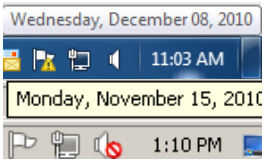


When the NTP feature of VoiBridge Liteis **not active** (it is disabled, the selected server is not online, or there is no connection to the Internet) it will display the default UTC date/time, which is begins at date Jan 1, 2000 and time 0:00:00.

You can temporary enable the SNTP service, to synchronize the time, and then disable it, and rely on the embedded RTC of VoibridgeI4-GSM to keep accurate time. Owing to its Real Time Click feature, it is not absolutely required that the NTP Client be active all the time. Whenever the NTP Client becomes active, it shows the current UTC time :



This UTC time may be different from the local time of your computer!



To adjust the Local Time, or to set it up manually, go to the configuration page **SYSTEM>Time**.

When the NTP feature is enabled, one can see in the system logs the moment when the application running on VoiBridge Lite connects to the Internet and synchronizes the time.

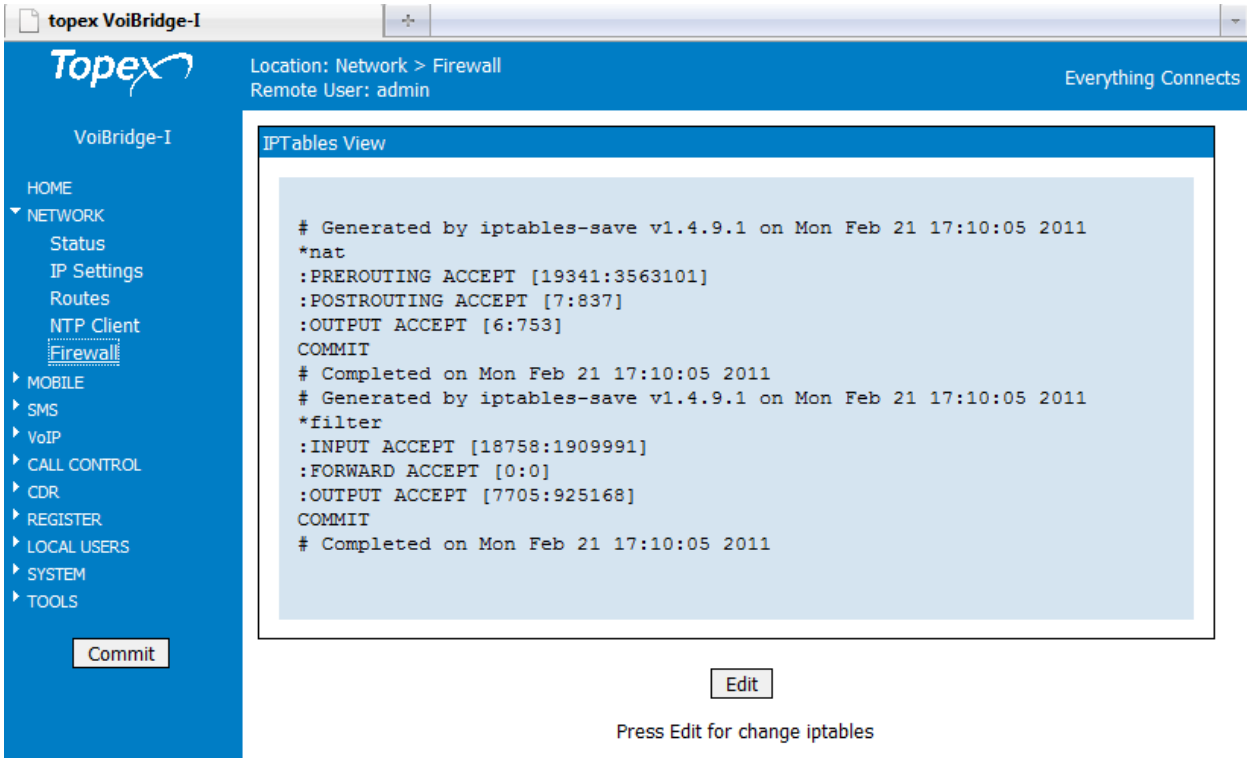
```
Jan  1 00:00:08 (none) kern.warn kernel: udp_redirect proc initialization okay!
Jan  1 00:00:08 (none) kern.warn mini_httpd[101]: started as root without requesting
chroot(), warning only
Jan  1 00:00:08 (none) kern.notice mini_httpd[101]: httpd starting on bytton, port 443
Jan  1 00:00:08 (none) kern.warn kernel: IFX TAPI v3 - The Common Voice API, version
3.5.1.4
Jan  1 00:00:08 (none) kern.warn kernel: ^M(c) Copyright 2006, Infineon Technologies AG
Jan  1 00:00:08 (none) kern.warn kernel: IFX VINETIC device driver, version 1.2.6.4
Jan  1 00:00:08 (none) kern.warn kernel: ^M(c) Copyright 2006, Infineon Technologies AG
Jul 10 13:18:14 (none) user.notice root: Receive Time form 192.168.168.168
Jul 10 13:18:15 (none) kern.warn kernel: reg_buffer_pool_get is called
```

At that moment, the date and time jumps from the default one beginning at "Jan 1 2000" to the actual date/time supplied by the NTP server selected by the user:

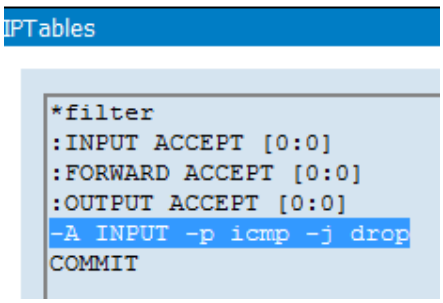
```
Jan  1 00:00:33 kernel:
Jan  1 00:00:34 kernel: EXT2-fs warning: mounting unchecked fs, running e2fsck is recomm
Jan  1 00:00:34 kernel: i2c-core.o: driver ds3231 registered.
Jan  1 00:00:34 kernel: i2c-core.o: client [ds3231-0] registered to adapter [ADM5120 I2C
Jan  1 00:00:34 kernel: RTC running at 12 hour!
Jan  1 00:00:34 kernel: ds3231_get_datetime: RTC not running!
Jan  1 00:00:34 kernel: ds3231_get_datetime: [0] 40 37 12 02 21 82 11
Jan  1 00:00:34 kernel: ds3231_get_datetime: secs=40, mins=37, hours=12, mday=21, mon=1,
Feb 21 14:37:40 crond[1443]: crond 2.3.2 dillon, started, log level 8
Feb 21 14:37:41 mini_httpd[1486]: socket :: - Address family not supported by protocol
Feb 21 14:37:41 kernel: vinled: init ok
Feb 21 14:37:41 kernel: udp redirect init
Feb 21 14:37:41 kernel: udp_redirect proc initialization okay!
```

5.9.6. Firewall

VoiBridge Lite comes with a default firewall configuration, which ensures the security of your local network. The “Firewall” section includes a window for viewing and changing the IP tables settings:

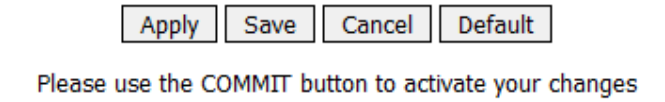


Here you can see the current state of data packets received and accepted. Press the button Edit located at the bottom to go to the table with rules to perform changes:



Enter the new rules that you want to add, for instance :
-A INPUT -m state --state ESTABLISHED -j ACCEPT
-A INPUT -p tcp -m tcp --dport 631 -j ACCEPT
-A INPUT -p all -s 127.0.0.1 -d 127.0.0.1 -j ACCEPT
-A INPUT -j DROP
-A OUTPUT -o lo -j ACCEPT
-A OUTPUT -p tcp -m tcp --sport 631 -j ACCEPT

When you are finished, use the buttons at the bottom:



Apply immediately applies the new rules, but they are not yet saves. „**Save**" saves them, but only in the temporary memory. The rules do not become persistent, unless you press the „Commit" button.
This is useful when testing new rules: you edit them and press Apply, than watch for the effect. If you do not like how the firewall performs, you just reboot the VoiBridge Liteequipment, and the recent changes will be lost, so you can start again editing the IP tables!

Definition

IP Tables is a user space application program that allows a system administrator to configure the tables provided by the firewall of the Linux kernel (implemented as different Netfilter modules) and the chains and rules it stores. Different kernel modules and programs are currently used for different protocols, the iptables apply only to IPv4.

A firewall using iptables this way is said to be a **stateful** firewall versus the older, stateless firewall, which was not fully aware of the context from which a data. Therefore, the iptables firewall can make better decisions on the fate of packets and connections.,

There are five predefined chains, though a table may not have all chains. Predefined chains have a policy, for example ACCEPT, which is applied to the packet if it reaches the end of the chain. The system administrator can create as many other chains as desired. These chains have no policy; if a packet reaches the end of the chain it is returned to the chain which called it. A chain may be empty.

PREROUTING: before effective routing, packets will enter this chain as soon as they are received by an interface, before a routing decision is made.

POSTROUTING: after the local routing is performed, but before *leaving* an interface

INPUT: Right before they are sent a local process, the rules apply to external packets that are sent to the equipment.

OUTPUT: Right after they are generated by a local process, rules apply to packets that get out of the VoiBridge equipment.

FORWARD: transfer operations, the data packets are coming in through one interface and getting out via another interface. All packets that have been routed and were not for local delivery will traverse this chain.

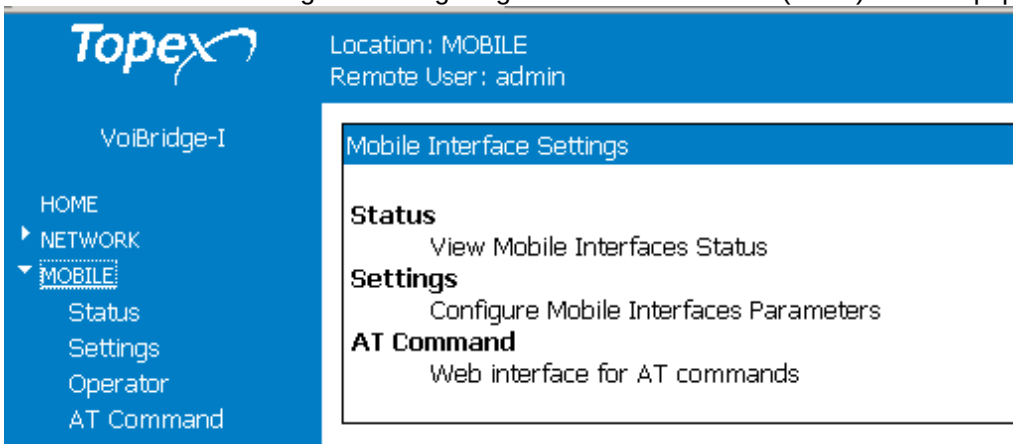
After you perform changes, you will see the completion date for the changed rules:

```
# Completed on Tue Feb 22 10:16:57 2011
# Generated by iptables-save v1.4.9.1 on Tue Feb 22 10:16:57 2011
*filter
:INPUT ACCEPT [9:1373]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [10:1668]
-A INPUT -p icmp -j ACCEPT
COMMIT
# Completed on Tue Feb 22 10:16:57 2011
```

When you are sure that the firewall works properly, don't forget to click the Save button and then "Commit" to make the changes you performed permanent.

5.10. Mobile

The "Mobile" section is for viewing and configuring the mobile interfaces (1 …4) of the equipment.

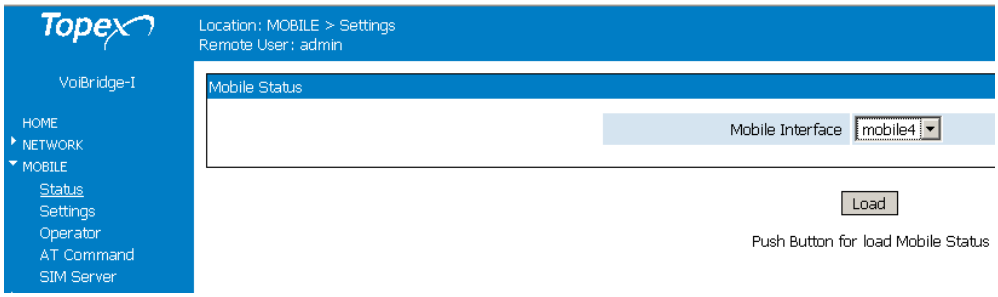


It has several sections:

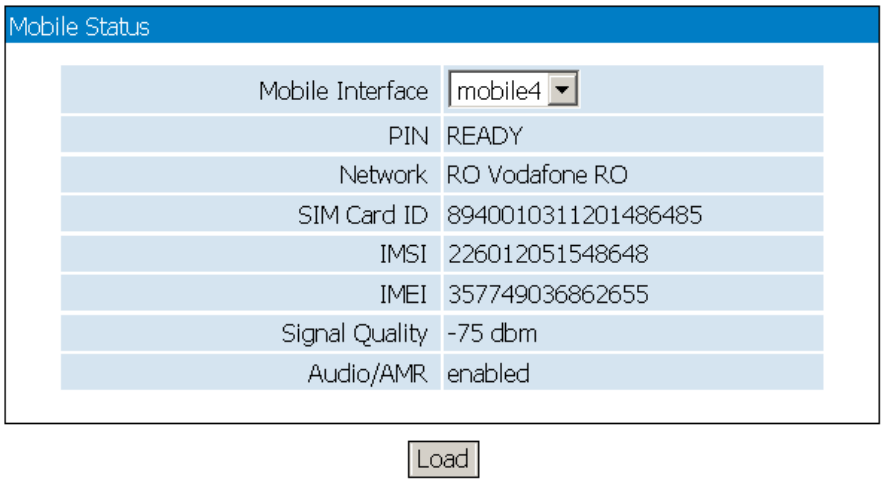
- one for displaying the current state;
- another for configuring the mobile modules
- the third one for operator selection (blocking the module to a certain mobile carrier), including the definition of the list of mobile operators;
- the fourth for sending AT commands directly to the mobile modules,
- and the last one for SIM Server (when used):

5.10.1. Status

Displays the state of the selected mobile interface:



First, select the Mobile interface whose state will be shown – select 1, 2, 3 or 4 , then press "Load" to see the current state (below for Mobile 4):



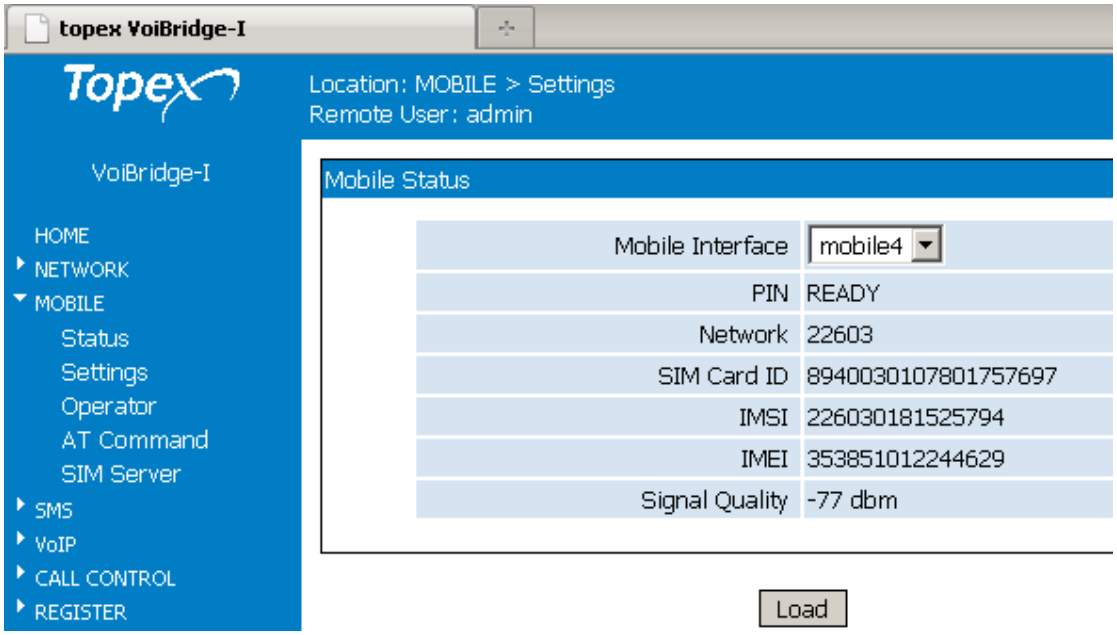
In case of 3G modules, an additional field show up, indicating the technology of the mobile network, in this case 2G for the Orange carrier	Mobile Interface: Mobile 1 PIN: READY Network: RO ORANGE 2G/3G: 2 SIM Card ID: 226102410043203 IMEI: 352679013327171
Mobile Interface: mobile1 PIN: READY Network: RO Digi.Mobil 2G/3G: 3G SIM Card ID: 894005081010012907 1F IMSI: 226050001213062 IMEI: 355060020310608 Signal Quality: -95 dbm	With another SIM card, the same "Mobile1" connects to the corresponding mobile carrier, showing usage of 3 G technology;

Mobile Interface	Mobile 2
PIN	READY
Network	CONNEX GSM
2G/3G	2
SIM Card ID	226019651342734
IMEI	352679013328864

Mobile Interface	mobile2
PIN	READY
Network	22610
SIM Card ID	226102410043203
IMEI	352024024751764
Signal Quality	-101 dbm

Likewise, should "Mobile2" be selected, the Topex device will show the state of the second GSM module, in this examples registered to different carriers

Other modules will show different:



PIN – state of the PIN code. **Ready** or **OK** is the normal state, which means the SIM is active (unlocked) and the equipment may be used. It happens when the PIN is not requested, or that it is asked for, the correct value has been entered, so the operate. If it shows ERROR, it means the respective SIM is blocked because of a missing or incorrect PIN code. *You must disable PIN request for the subscriber card!*

Network – when the respective SIM is properly registered, this field shows the name of the mobile network where the equipment is registered, as transmitted by the mobile carrier and understood by the mobile. Thus, it can be either the commercial name of the carrier, such as "RO Orange", "CONNEX GSM", "COSMOROM" and so on, or a code like <<0,2, "22601",2>>. If the Sim is missing or not properly registered, this field may display "Limited service"

2G/3G – for equipments fitted with 3G modules, it shows the type of network: either 2G or 3G (second or third generation).
This is the technology (GSM/GPRS or UMTS/HSDPA) of the mobile network where the module is actually connected, provided that the network allows this information;

Sim card ID – it shows in fact the IMSI (International Mobile Subscriber Identity) code, that is specific to the subscriber, therefore to the Sim card used in the Topex equipment. See below a few IMSI codes, from different SIM cards used in the modules of VoiBridge I4-GSM :

IMSI Code	22605000121306	22601965134273
IMSI Code	22610241004320	22601853012194
IMSI Code	22610100373296	22610574108729

When the Mobile module of VoIBridge Lite detects an active SIM card, it will query (and display) the IMSI code. Since the IMSI code is related to the SIM, when changing the SIM card used with the respective GSM module, the user will have another IMSI code.

IMEI - the International Mobile Equipment Identifier is a 15-digit number that uniquely identifies an individual mobile terminal wireless device. While IMSI is specific to the subscriber (SIM card), IMEI is specific to the equipment (cellular modem of VoiBridge Lite)
If the SIM card is missing, the SIM Status window will show "error" in the fields PIN, IMSI, Signal Level, Network and respectively Registration. But the user will still see the IMEI code, since it is equipment-dependent, and not related to the SIM card.

Signal Quality - The level of the signal received from the mobile network.

Mobile Interface	mobile2
PIN	READY
Network	22610
SIM Card ID	226102410043203
IMEI	352024024751764
Signal Quality	-101 dbm

This level may display as a relative or absolute value. Older firmware versions did show only the relative level, on a scale from 0 (minimum) up to 99 (the maximum).

The relative scale of signal quality is especially useful for making comparisons between different types of external antennas, their locations or the orientation, if directional aerials are used.
In this example, moving the omni directional stick antenna slightly has increased the signal level on interface Mobile 2 from 9/99 to 11/99:

Mobile Interface	Mobile 2
PIN	READY
Network	CONNEX GSM
2G/3G	2
SIM Card ID	226019651342734
IMEI	352679013328864
Signal Quality	11,99

The newer firmware versions show the level directly in dBm, as shown in this example.
Signal level is shown with a minus sign, this means that a smaller figure corresponds to a higher signal level.
For instance, -85 dBm corresponds to a better signal quality than -101 dBm, and -75 dbm is even better!!!

Signal Quality	-75 dbm

Mobile Interface	mobile1
PIN	READY
Network	
SIM Card ID	226108011074609
IMEI	352024024759098
Signal Quality	-85 dbm

Audio/AMR	enabled

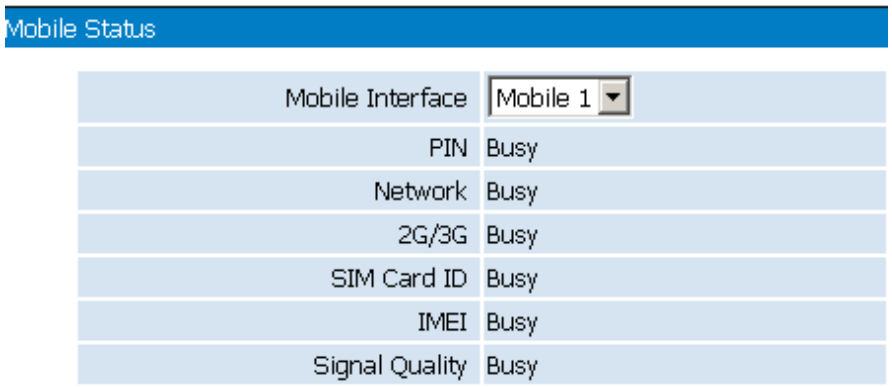
Load

Audio /AMR – enables or disables the **Adaptive Multi-Rate** () Vocoder. AMR is a patented audio data compression scheme optimized for speech coding, according to GSM 06.90. AMR was adopted as the standard speech codec by 3GPP in October 1998 and is now widely used in GSM and UMTS. This only works with certain GSM modules (form Siemens).

At the bottom there is a "**Load**" button again - click it to refresh the display of module's status. This way one is sure to see the current state of the mobile module and subscriber information!

Notes:

To be able to display the current state, the respective mobile module must **NOT** be in a call! When the GSM module is routing a VoIP call, or transmitting an SMS message, it will no longer be available for status **interrogation**, so it will display "Busy":



*This does not mean something is wrong, simply that the module is unavailable for status **interrogation**. Try again (click "Load") later, when finished with the voice call or the transmission of SMS messages.*

Mobile Interface: mobile3 PIN: Busy Network: Busy 2G/3G: 3G SIM Card ID: Busy IMSI: Busy IMEI: Busy Signal Quality: Busy	Of course, it is possible that the respective SIM is really unavailable; missing, not registered, or the corresponding module (mobile3 in this case) has been disabled from the web configuration page! Then, even if you press reload, the displayed state will still be "busy', indicating that the respective SIM card / mobile module is not available!

1. Likewise, the value “zero” for the signal quality does not mean <<no signal at all>>, it is simply the lowest value indicated by the equipment.
   In this case one may have a “Limited service” warning - the Sim is still registered to the network, but cannot be used for ordinary voice calls, it is only good for the emergency services!

Mobile Interface	Mobile 1
PIN	READY
Network	Limited Service
2G/3G	2
SIM Card ID	226102410043203
IMEI	352679013327171
Signal Quality	0,99

3 . The “Mobile” information available depends upon the actual type of the cellular module used in VoiBridge Liteand upon the service provider.

Thus it is possible that you get less detailed information, as in the following example:

Mobile Interface	Mobile 1
PIN	READY
Network	22601
2G/3G	
SIM Card ID	226012051548648

“Limited Service”

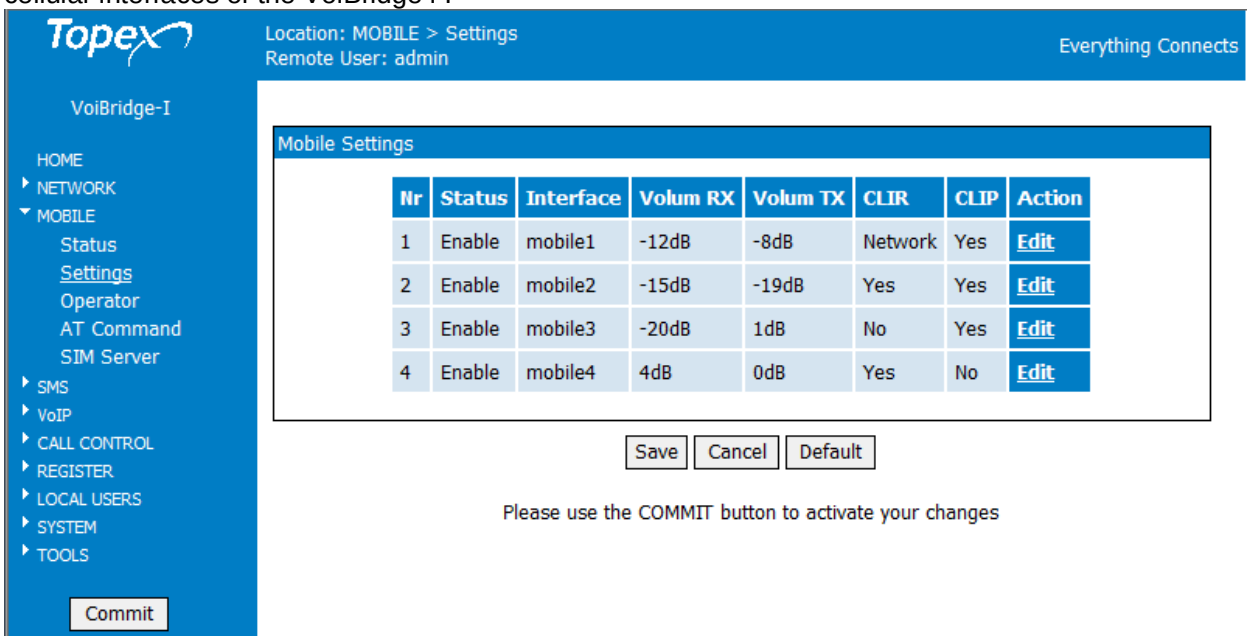
Mobile Interface	mobile3
PIN	READY
Network	Limited Service
2G/3G	3G
SIM Card ID	89400302060008
IMSI	226030180385984
IMEI	355060020310560
Signal Quality	-95 dbm

Mobile Interface	mobile4
PIN	READY
Network	Limited Service
2G/3G	3G
SIM Card ID	894001070904290
IMSI	226014052390876
IMEI	355060020310939
Signal Quality	-89 dbm

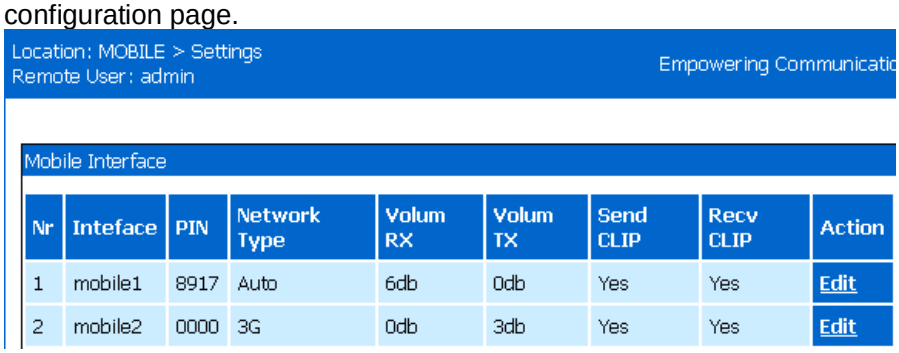
The message “Limited Service” indicates a SIM registered to the mobile network, but not having access to all of the services provided by the respective carrier – perhaps the Sim does not have enough credit left, or the mobile cell is overloaded, and the network operator tries to prevent overload of the access channel under critical conditions (emergencies).

5.10.2. Settings

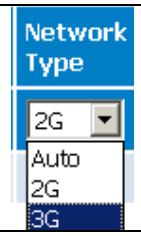
The settings for the four mobile interfaces: One can edit the parameters for each of the two cellular interfaces of the VoiBridge l .



There are some differences, according to the type of modules in your actual equipment. If the mobile modules are for 3G+ network, an additional configuration field, "**Network type**", will show up in this configuration page.

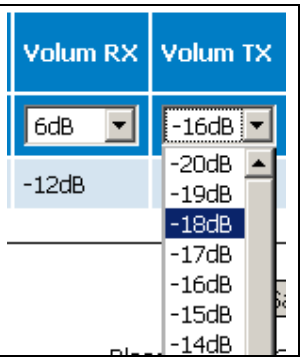

Location: MOBILE > Settings
Remote User: admin
Empowering Communicatio
Mobile Interface
Nr Inteface PIN Network Type Volum RX Volum TX Send CLIP Recv CLIP Action
1 mobile1 8917 Auto 6db 0db Yes Yes Edit
2 mobile2 0000 3G 0db 3db Yes Yes Edit

Click "Edit" of the Mobile Interface where you want to change the parameters:

Network Type – if available, this option concerns registering with the mobile network. Here one can establish the selection of the type of network to which the module will connect. *This option is available only in case of 3G modules!* The default is Auto, for automatic search, but one can make the module connect either only to 2G networks (GSM, GPRS, and EDGE) or only to 3G networks (UMTS/HSDPA).	

Volume

When the feature is active, one can modify the sound level both for the output – TX and input – RX of the voice channel. Note that this feature is not available for all types of modules; some GSM modules do not support this.
Select Volume to change the audio level for **input** and respectively for **output.** The default may be -18dB for RX and -8dB for TX, you can select to increase / diminish the volume as you need, in 1 dB increments (from -20 dB up to + 6 dB).



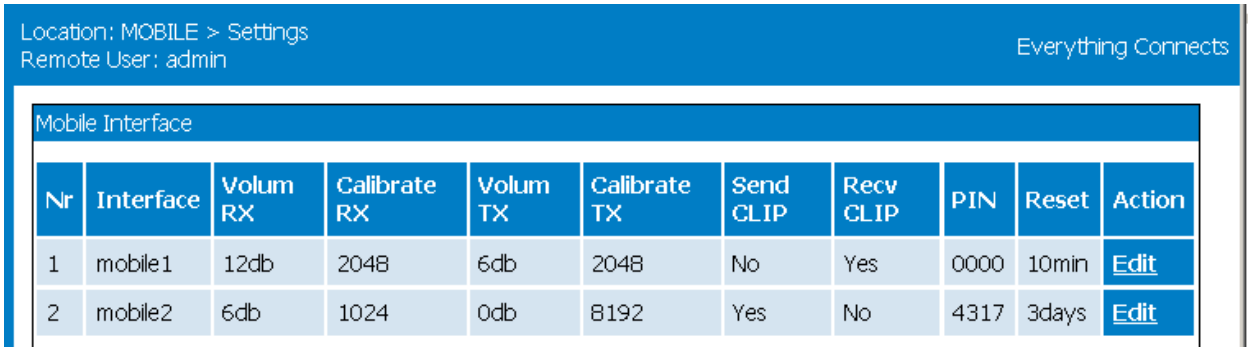
One may use the "Default" button located at the bottom of the page to restore the default level for both input and/or output.

Default

Definition of RX and TX
In this page for Mobile Settings, RX is the voice path coming form the mobile network towards VoIP, while TX is the reciprocal voice path, which comes form VoIP towards the mobile network.

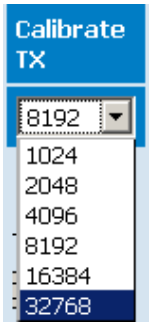
Note1: Don't forget to use the button "**Save**" to store the changes performed over the audio volume.
Note2: The audio volume can be set up only when the State of the Mobile module is "ready", which means registered but not busy.
If the module was busy dialing a number, or sending / receiving SMS messages, it will not be available for **interrogation**, so the request to set a different audio level will not be applied.

Note3*: Some type of GSM modules provide an additional volume control, CALIBRATE.*



Nr	Interface	Volum RX	Calibrate RX	Volum TX	Calibrate TX	Send CLIP	Recv CLIP	PIN	Reset	Action
1	mobile1	12db	2048	6db	2048	No	Yes	0000	10min	Edit
2	mobile2	6db	1024	0db	8192	Yes	No	4317	3days	Edit

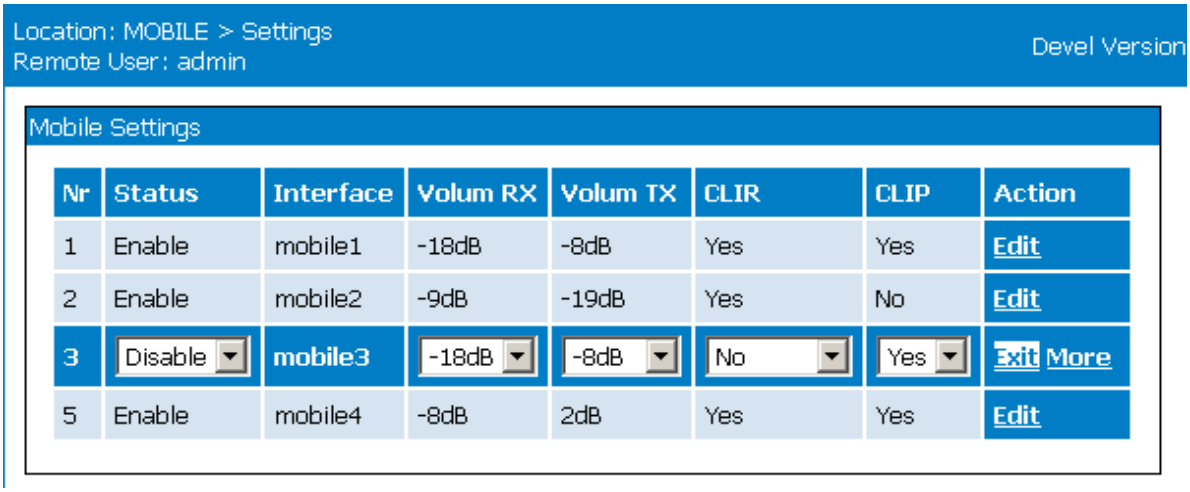
The values typed into the "**Calibrate**" field affect the default volume setting, you can make the default (0 dB) level louder or weaker, if needed.



The initial (factory default) value for Calibrate is 8192, you can increase it up to 32768, or diminish it down to 1024.

You can set up the Calibrate field independently for each module, and for transmission and reception.

Note4: Do *not change the audio level parameters unless necessary, as this may affect the voice quality.*


Location: MOBILE > Settings
Remote User: admin
Devel Version
Mobile Settings
Nr Status Interface Volum RX Volum TX CLIR CLIP Action
1 Enable mobile1 -18dB -8dB Yes Yes Edit
2 Enable mobile2 -9dB -19dB Yes No Edit
3 Disable mobile3 -18dB -8dB No Yes Exit More
5 Enable mobile4 -8dB 2dB Yes Yes Edit

CLIR –restrict sending identity

One may select to **send out** or not the Caller ID (presentation). If you choose **Yes**, VoIBridgeI4 will perform **CLIR** - the identity of the call will **not** be sent (identity restricted). **No** means CLIR is disabled, so ID **will be sent**.

Network means the sending or not of caller ID is established by the mobile network.

See below an example of call with restricted identity, ANI shows up as "unknown":

incoming	mobile1	26-11-10	14:21:22	000000	0724545419	0	192.168.244.167
outgoing	mobile3	26-11-10	14:22:04	000006	246	0724545419	192.168.244.167
outgoing	mobile1	26-11-10	14:23:18	000011	Unknown	0731040784	192.168.244.167

Warning: *Several services, including routing of calls, rely on the ID of the caller, if you select Yes, these services may no longer be accessed*.

CLIP - Receiving identity

Yes of No – the same applies for **receiving** the *calling line identification presentation.*

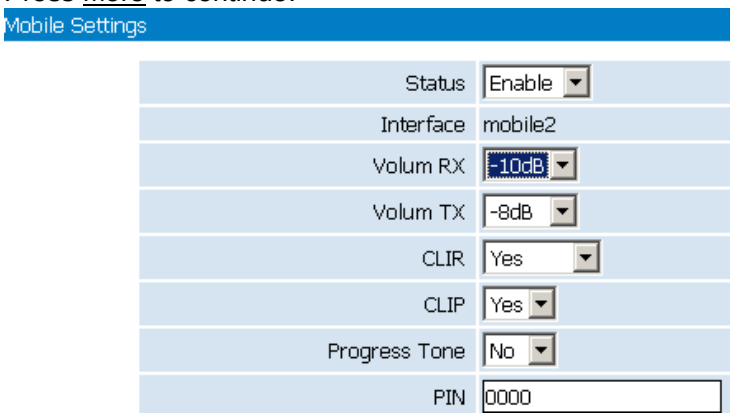
Note – *the options concerning CLIP enable or disable sending or receiving of ID for **all** the calls performed over the respective Mobile module*

Action

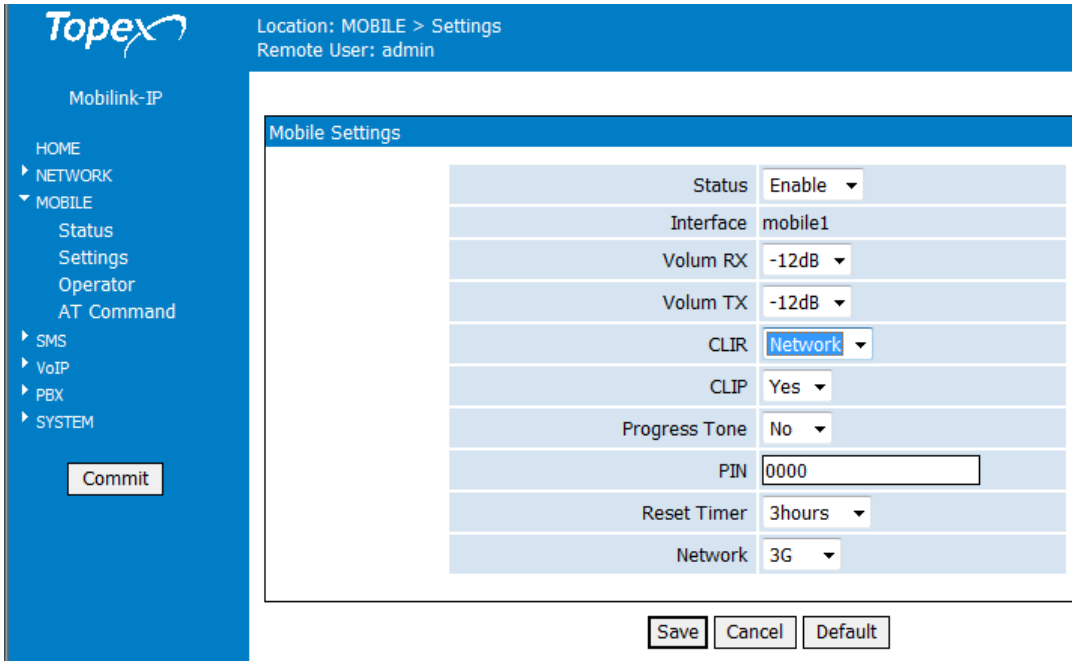
The button to the end of each row shows either **Edit**, to edit it, or two options,

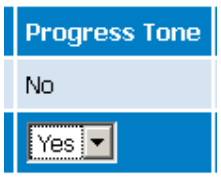
Exit to quit editing the respective line of settings, and **More** to go to the following page for configuring the parameters of the mobile interface.

Press More to continue:



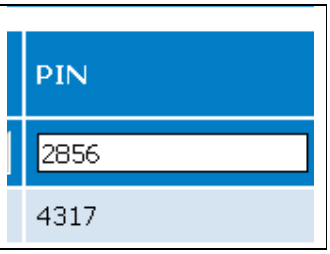
The window which shows up includes all the settings, for the respective module (mobile2 in this example).
There was no room to display all the settings in the previous table, which included all two or four modules, so if you need to edit all l the settings, you must use this kind of vertical window, for each module.
The fields Status, Volume for Rx and TX, CLIP and CLIR have been explained previously, here are also other parameters: progress tone, PIN, etc.





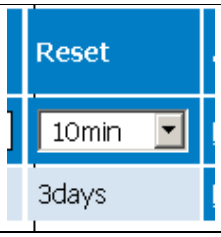
Progress Tone

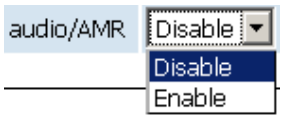
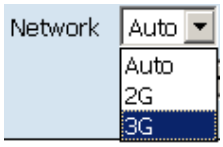
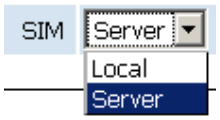
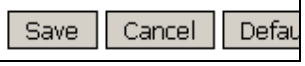
Enables or disables (default is No) the generation of audio tones that indicates the progress of establishing a call.

PIN – for each mobile interface, you can enter a PIN code. If you leave this field empty, or if you type a value of “0000”, no PIN will be taken into account. Of course, this feature is active only when “PIN REQUEST” has been enabled for the respective SIM card!	

If you enable the request for PIN code, but you enter a value different from the real PIN of the SIM card, the module will be. So you must either enter the correct value, or disable the request for PIN on the SIM card!

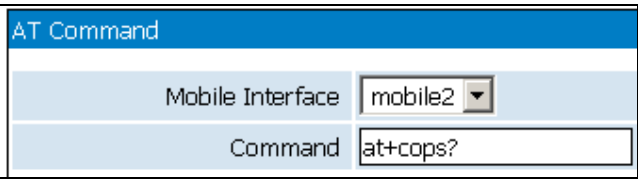
Warning – *you could reset the VoiBridge Litedevice after you see that a SIM is locked by PIN. But if you reset the equipment three times in a row, the limit for PIN request will be reached, the SIM will become permanently blocked, requiring the PUK code to work again!*

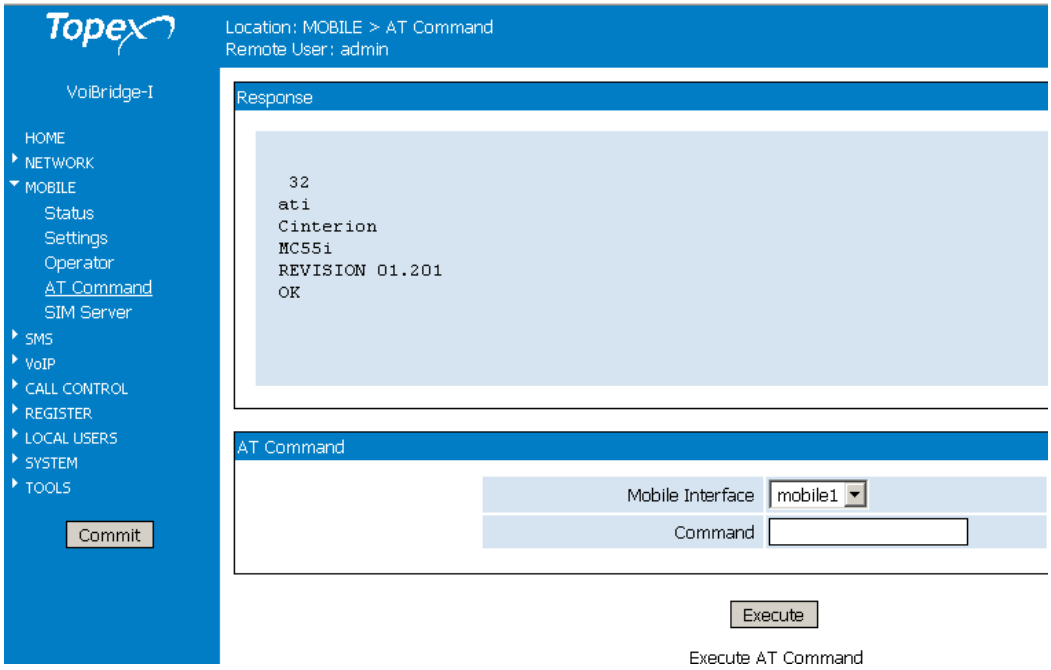
Reset – for each module, you can set up a time interval following which the respective module will be resetted. Form the drop list that shows up, you can select None (default, no resetting), 5 minutes, 10 minutes, and so on, up to three days. This is an easy to use mean of programming a reset, if you need more advanced timing options you can use the option "**Cron**", which is implemented in the *System* configuration pages.	

The field **Audio/AMR** can be present or not, depending upon the actual type of mobile module used. It selects to Enable or Disable the usage of AMR coding for GSM calls. AMR coding is typically used for mobile calls with very good results, but, since it is optimized for voice calls, when you disable it, it favors receiving of DTMF over GSM.	
Another field that shows up only for certain equipments 9fitted with 3G modules) is N**etwork.** You can choose the technology of the mobile network to be used – either 2G (GSM/GPRS) or 3G (UMTS/HDSPA/HSUPA). The default is **Auto**, meaning the equipment looks first for 3G networks, and if they are not available, it will connect to 2G networks.	
The last field, SIM, is present for all types of VoiBridge I4 devices. It refers to the usage of SIM cards – either **Local**, the real SIM card placed in the Sim holder, or **Server** - a virtual SIM will be used instead, from the remote SIM Server. By default it is set to Local, VoiBridge I4-GSM makes use of real SIM cards.	
Before leaving this section, choose one of the buttons at the bottom, Save, Cancel or Default.	

5.10.3. AT Commands

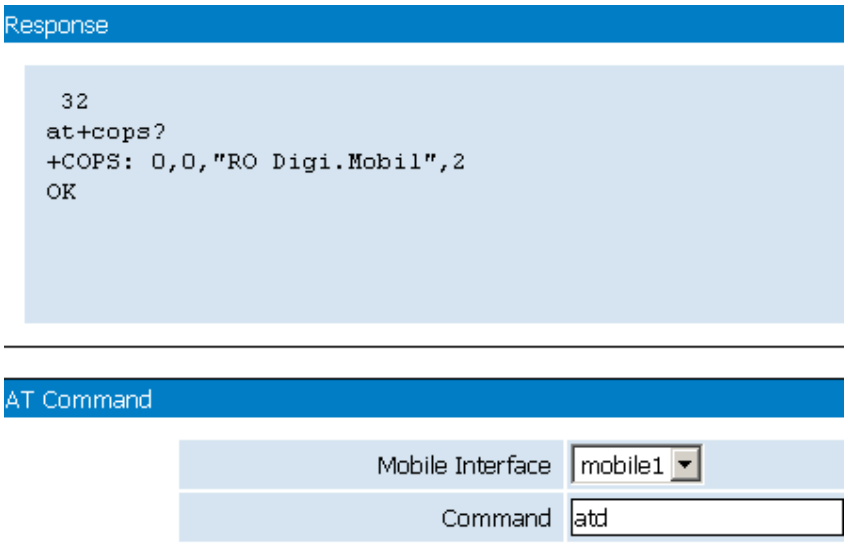
Allows you to send AT commands directly to the GSM modules of the equipment and then see the respective results:





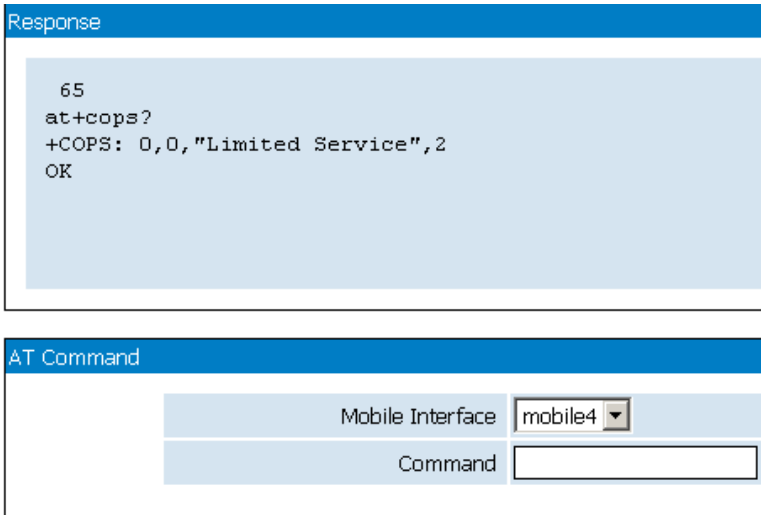
First select the GSM module to be queried, choose mobile Interface 1, 2 … 4.
Then type in the field “Command” the AT command that you want to issue to the module, such as “ATI” which displays the type of mobile module, in the above example, or “AT+cpin?”, and press the button “Execute” to execute the command.

The command and the result (the response from the module to the query) will be displayed in the upper field, named “Response”, as you can see in the examples below for “AT+cops?”,:

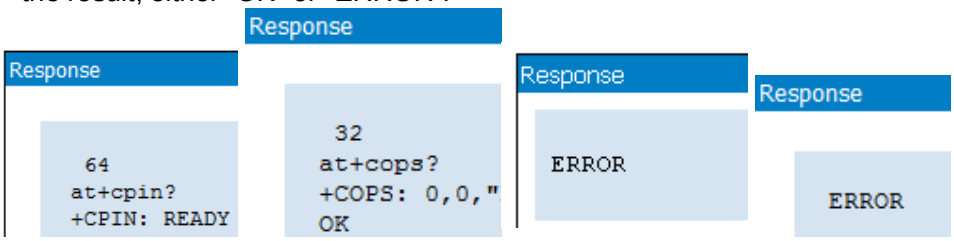


The *Response* field in the upper part of the screen shows:

- which mobile interface has been queried, by displaying a number above the command and the answer to the command, respectively 32 (for mobile 1), 33 (for mobile 2), 64 (for mobile 3) and 65 (for mobile 4)
- the command issued
- the response, above the command



- the result, either “OK” or “ERROR”.



AT Commands

AT commands are instructions used to control a modem. Many of them, initially used to control wired dial-up modems, are also supported by 2G/3G modems and mobile phones. Besides this common (basic) AT command set, GSM/GPRS modems and mobile terminals support an extended AT command set, which is specific to the GSM technology. VoIBridgeI4 currently uses internally such extended commands for voice, data and SMS, but with this configuration page, you can send commands directly to the wireless modems of the equipment.

Some examples of such commands are shown below:

- Get basic information about the mobile modem. Such information may be the name of manufacturer (AT+CGMI), model number (AT+CGMM), IMEI number (International Mobile Equipment Identity) (AT+CGSN) and software version (AT+CGMR).

```
 0
AT+CGMI

SIEMENS

OK
```

```
 32
at+cgmi
Sierra Wireless, Inc
OK
```

```
 0
AT+CGMM

MC55i

OK
```

```
 0
AT+CGSN

352024024759098

OK
```

```
 0
AT+CGMR

REVISION 01.003

OK
```

- Get basic information about the subscriber. To find out MSISDN use AT+CNUM and for the IMSI code (International Mobile Subscriber Identity) use AT+CIMI.

```
 32
at+cimi
226050001213062
OK
```

Get the current status of the mobile phone or GSM/GPRS modem. For example, mobile phone activity status (AT+CPAS), mobile network registration status (AT+CREG), radio signal strength (AT+CSQ).

```
 0
AT+CSQ

+CSQ: 19,99
```

- Establish a data connection or voice connection to a remote modem (ATD, ATA, etc).
- Send (AT+CMGS, AT+CMSS), read (AT+CMGR, AT+CMGL), write (AT+CMGW) or delete (AT+CMGD) SMS messages and obtain notifications of newly received SMS messages (AT+CNMI).
- Control the presentation of result codes / error messages of AT commands. For example, you can control whether to enable certain error messages (AT+CMEE) and whether error messages should be displayed in numeric format or verbose format (AT+CMEE=1 or AT+CMEE=2).
- Get or change the configurations of the mobile modem. For example, change the GSM network (AT+COPS), bearer service type (AT+CBST), radio link protocol parameters (AT+CRLP), SMS center address (AT+CSCA) and storage of SMS messages (AT+CPMS).

```
 0
AT+COPS?

+COPS: 0,2,"22601"
```

```
 0
AT+CBST?

+CBST: 7,0,1
```

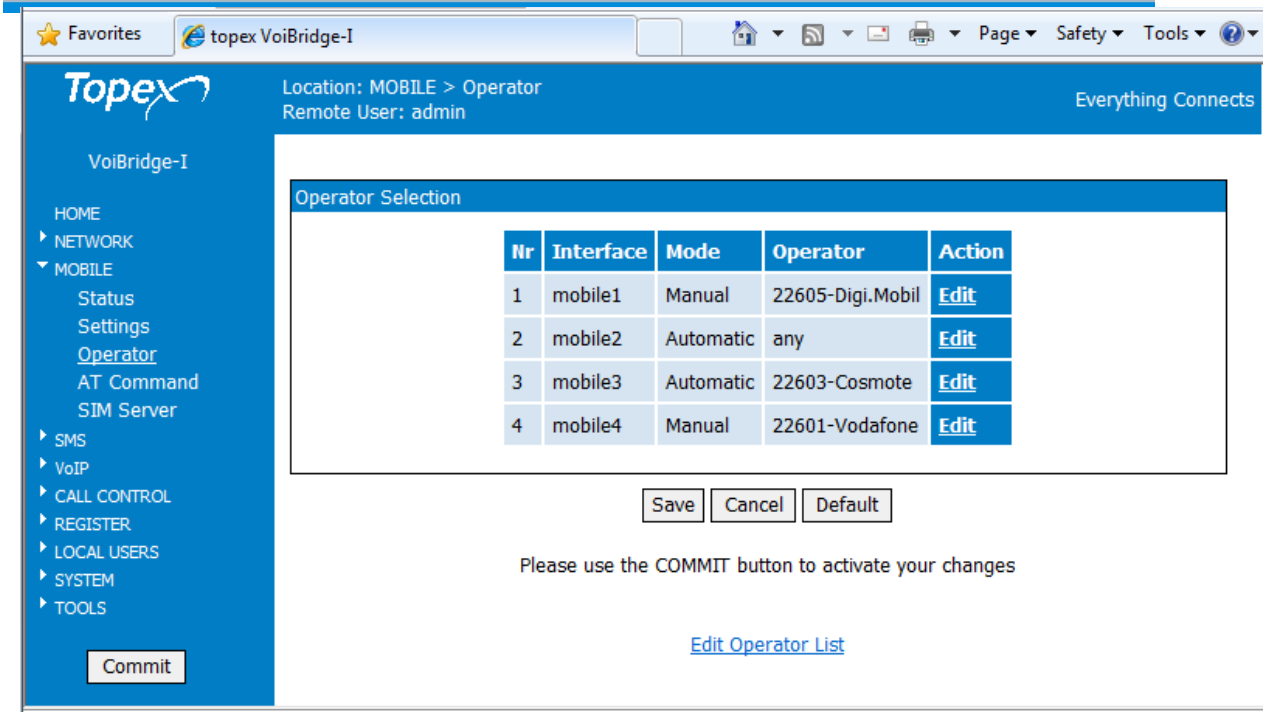
```
 0
AT+CRLP?

+CRLP: 61,61,78,
```

```
 32
at+cpms?
+CPMS: "SM",3,100,"SM",3,100,"SM",3,100
OK
```

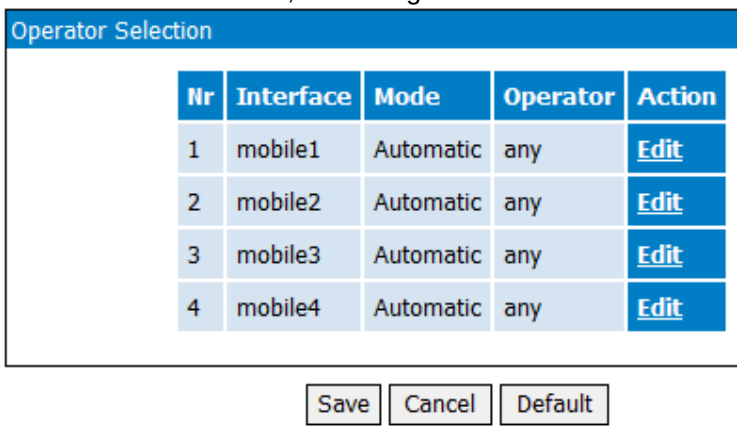
- Save and restore configurations of the mobile modem. For example, save (AT+CSAS) and restore (AT+CRES) settings related to SMS messaging such as the SMS center address.

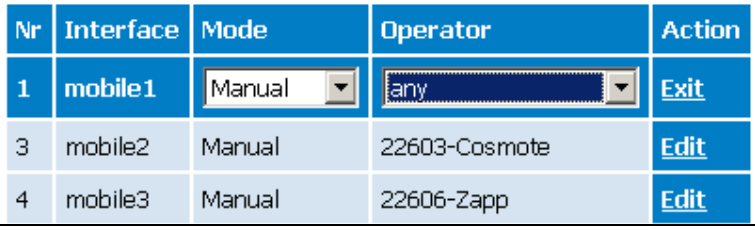
5.10.4. Operator selection

This allows you to lock each mobile module of the equipment to a specified network operator:



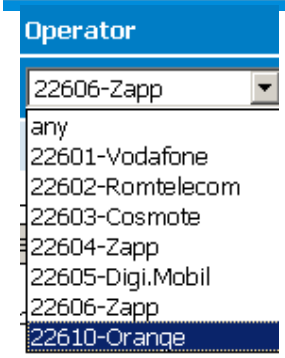
By default, all modules are set to Automatic, which means there is no locking, each module searches and finds its network carrier, according to the SIM used.



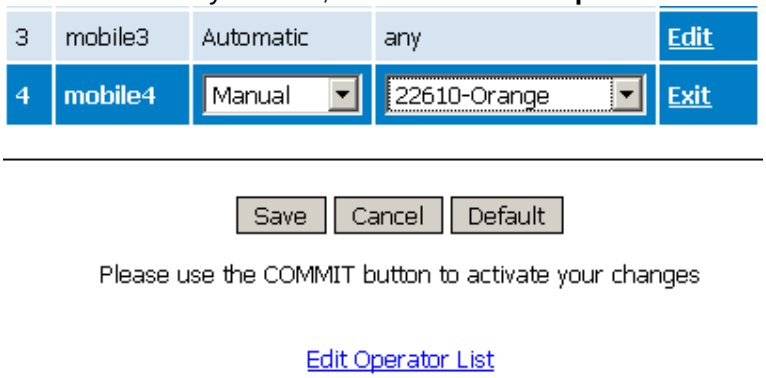
You can Edit the line for each of the four interfaces: If you select **Manual**, then you must also choose a certain operator from the drop list.	

Nr Interface Mode Operator Action
1 mobile1 Manual any Exit
3 mobile2 Manual 22603-Cosmote Edit
4 mobile3 Manual 22606-Zapp Edit

When Operator is left to the default “any”, no locking is performed.



The “Operator” drop list shows the 5-digit code (22601, 22602 and so on) followed by the name of the respective network operator.
This list is country- and area- specific, so you should use a list corresponding to the mobile carriers which are active in your territory.
To define / modify this list, use the link “**Edit Operator List**” that is located at the bottom of the page:


3 mobile3 Automatic any Edit
4 mobile4 Manual 22610-Orange Exit
Save Cancel Default
Please use the COMMIT button to activate your changes
Edit Operator List

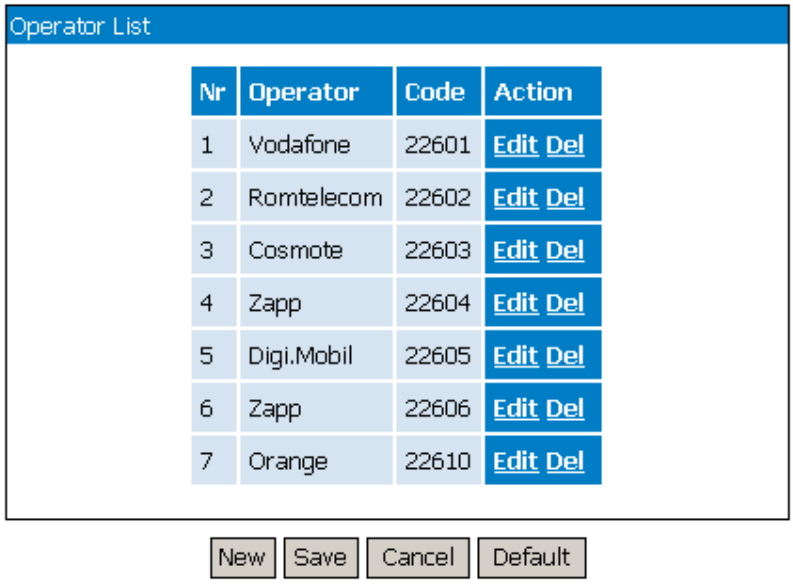
6.4.6 Edit Operator List

At first, this list is empty.

You may create new records in the list, edit them, save or delete each line of the table.

In the column “Operator” you enter the name of the mobile provider, while in the filed “Code” you type the corresponding international code.

The list in this example has been edited for **Romania**, and includes all mobile operators registered in our country.

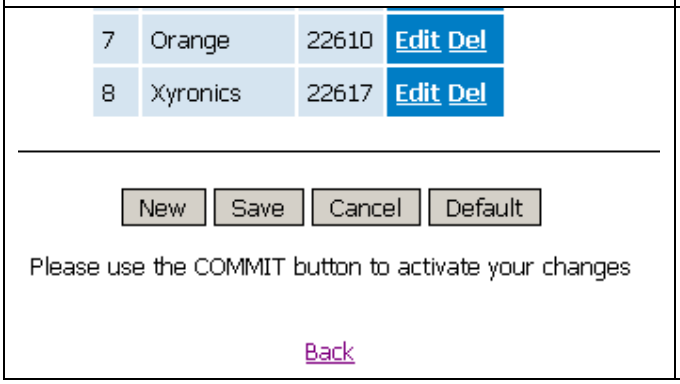

Operator List
Nr Operator Code Action
1 Vodafone 22601 Edit Del
2 Romtelecom 22602 Edit Del
3 Cosmote 22603 Edit Del
4 Zapp 22604 Edit Del
5 Digi.Mobil 22605 Edit Del
6 Zapp 22606 Edit Del
7 Orange 22610 Edit Del
New Save Cancel Default

For instance, in the case of **Australia**, the Operator List will look like this

One.Tel	505 08
Telstra Mnet	505 01
VODAFONE AUS	505 03
YES OPTUS	505 02

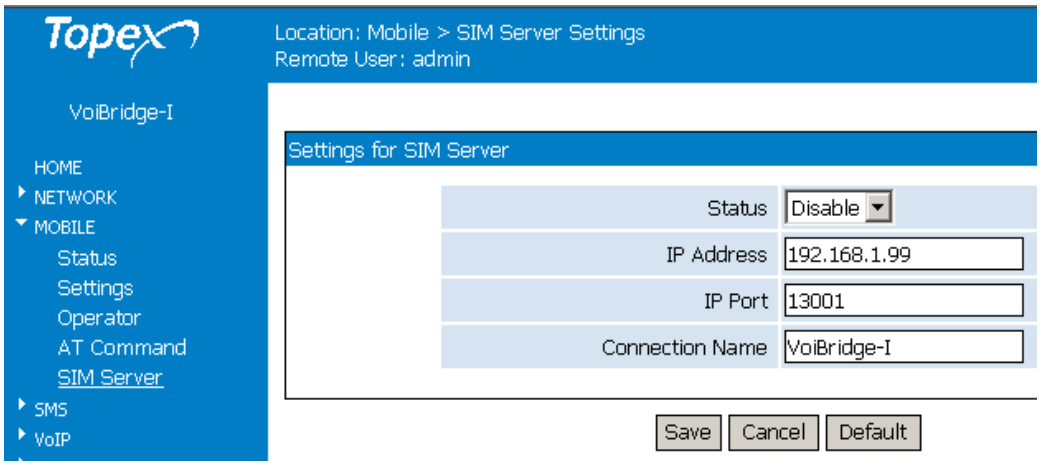
While for **Spain**, the corresponding table with operator and network codes is the following:

E AIRTEL	214 01

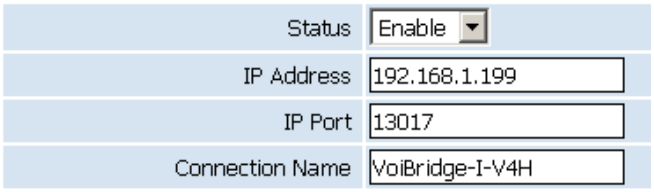
	E AMENA 214 03 MOVISTAR 214 07 MOVISTAR 214 02
	You can Edit the existing records, or add New ones to the list. Save the new Operator List, then use the link "Back" located at the bottom to return to the page for "Operator Selection".

6.4.7. SIM Server

It should be used when instead of a local physical SIM card you connect to a remote SIM sever to provide you with SIM information.



By default this feature is Disabled.

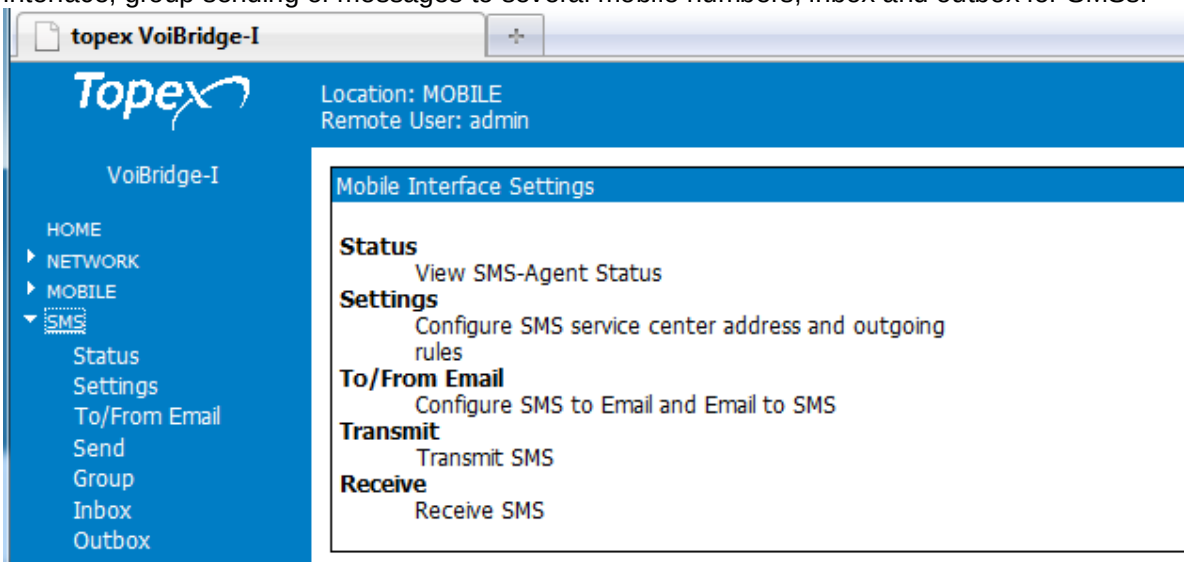


When you need to use a remote SIM server, you must complete the IP address of the server, the port used, such as 12017 in this example, and the name of the connection, such as "voibridge-I-V4H" in this example.

Of course, these settings must agree with the parameters set up on the SIM Sever!

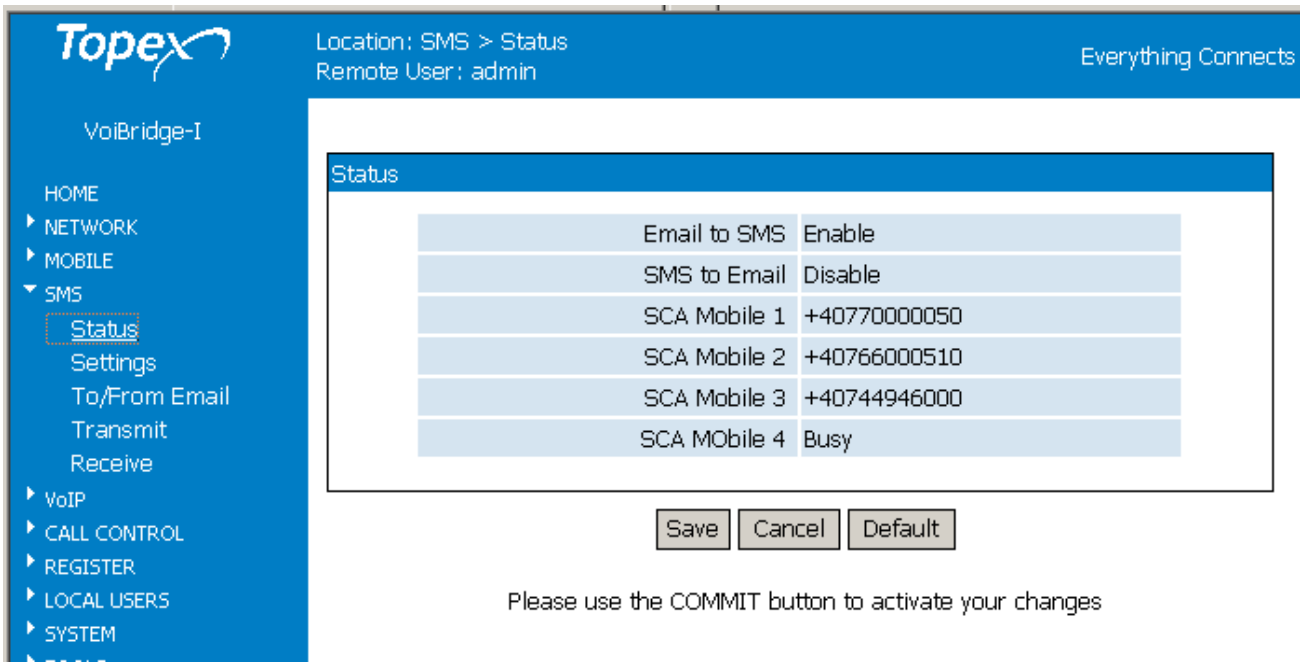
6.5 SMS

Here are located all the settings for SMS functions: display status, establish configuration, set up parameters for SMS to e-mail and e-mail to SMS conversion, transmitting messages from the Web interface, group sending of messages to several mobile numbers, inbox and outbox for SMSs:



6.5.1 Status

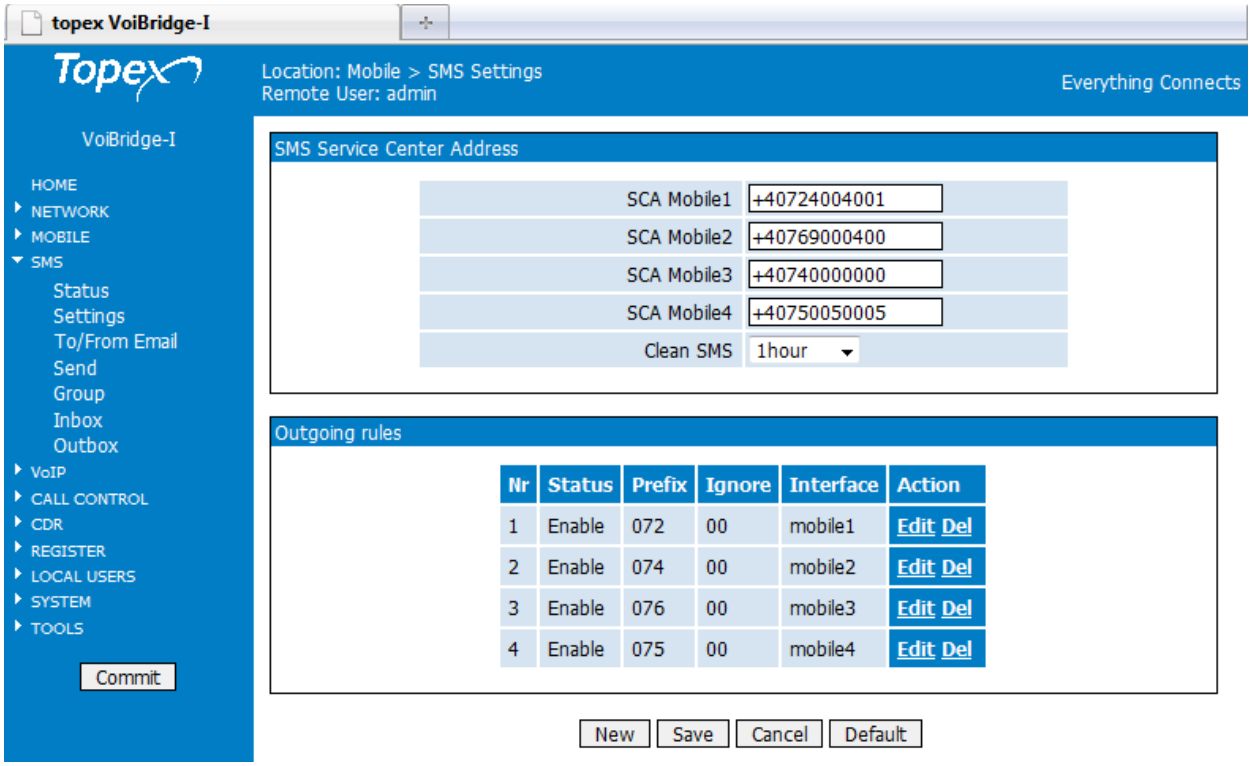
Of course, Status shows the current STATE of the e-mail to SMS and SMS to e-mail features, and the addresses of the service centers for the up to four SIM cards:



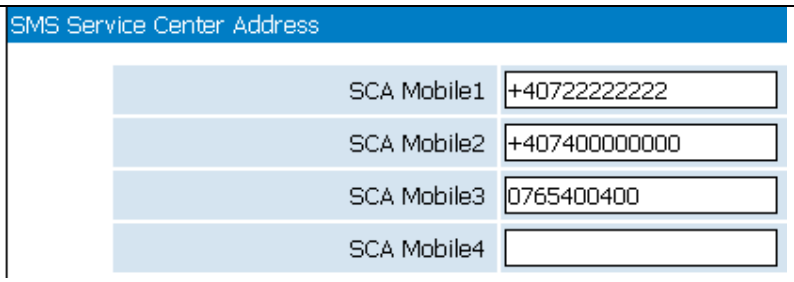
Here you can only see information, you cannot change the settings. Go to the next page for configuring the SMS-related parameters!

6.5.2 Settings

The SMS settings include the SCA numbers, the time interval for clearing out SMS messages, and the outgoing rules for text messages:



SCA – SMS Service Center Addresses



The phone number of the service center, SMSC, is very important for sending out SMS messages, no matter if you send them from your cell phone, from the Web interface of VoiBridge Liteor from the E-mail-2-SMS program. Thus the address of this service center must be set up correctly.

The SMSC (SMS center) is responsible for handling the SMS operations of a mobile network. It routes SMS messages sent from a mobile phones or terminals. When the recipient is not available (out of the coverage area, cell phone switched off), the SMSC will store the SMS messages. Later, when the recipient is available, the SMSC will forward the messages.

Generally the SMS centers are specific to each carrier, so in order to use SMS messaging with your terminal or with VoIBridgeI4 IP, you must know the correct “address” of the SMSC for the operator of the respective mobile networks.

Typically an SMSC address is an ordinary phone number in the international format (ITU E.164/E.163), such as +20122000020 or +49-1715990000. There are also exceptions, for instance in Albania the operator AMC uses, following the country prefix +355, a “short” number for SMSC, “3820”.

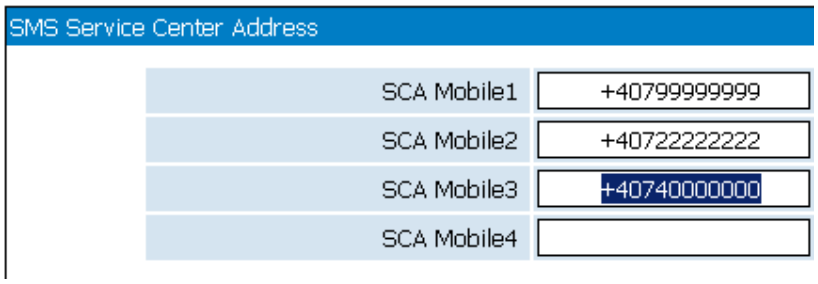
Normally, the SMSC address is pre-set in the SIM card by the respective mobile wireless network operator, and VoiBridge I4-GSM reads it form there, which means **you do not need to make any changes to it**.

Also, most cell phones provide some means for the user to view and change the service center number saved in the profiles of settings, so you could set up or change the address of SMSC. For example, on several Nokia phones, the message center number saved in the default profile of settings can be viewed and changed by going to *Menu -> Messages -> Message settings -> Text messages -> Sending profile -> Default profile -> Message centre number.*

This means you can set up the address on the SIM, using an ordinary mobile phone, **before** inserting the SIM card into the VoiBridge Litedevice.

VoiBridge Litegets the SMSC address automatically from each SIM, but you can also change the SC numbers, if there is need to.

To perform this change, you can use the configuration page **SMS>Settings**:

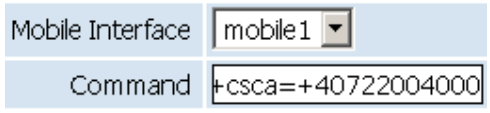


You can do it also the hard way! Go to the configuration page **Mobile>At Command** and use the command "**AT+CSCA**" (Service Centre Address) to read or set the address of the service center through which SMS messages will be sent out:

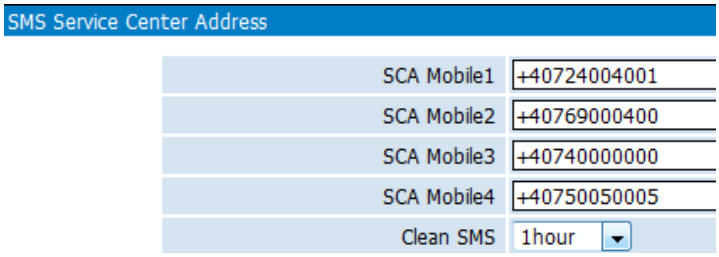
```
at+csca?

+CSCA: "+40722004000",145

OK
```

```
at+csca?

+CSCA: "+40744946000",145

OK
```

The command **AT+CSCA?** asks for the current SMSC address, while the command in format **AT+CSCA=number** sets up the new address to the phone number of your choice, such as the one for Vodafone Romania, shown below:



CLEAN SMS



This is simple and easy to use setting for cleaning out the received SMS messages.

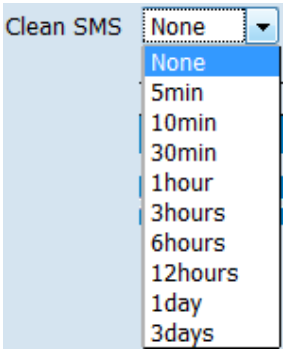
It is possible that you receive very many text messages, and most of them are of no further use after reading, so that you have to erase the received SMS, in order to avoid cluttering of the memory.

The "Clean SMS" feature performs automatic cleaning out (erasing) of the received text messages.

From the drop list, you may select the time interval for deletion.

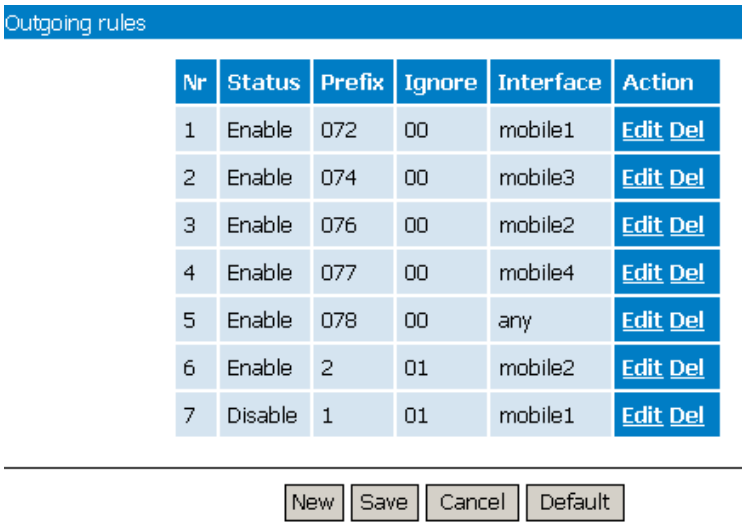
The default value is None, meaning no erasing is performed.

You may choose one of the pre-set time intervals for cleaning out the SMSs: 5 minutes, 10 minutes and so on, up to "3 days", which means that the messages will be erased every three days!



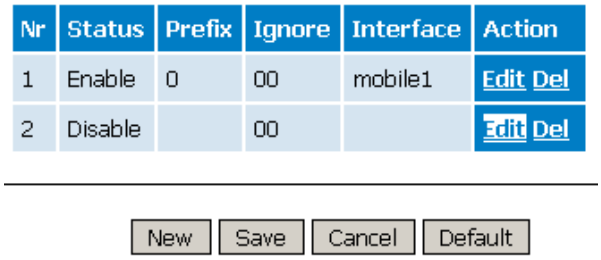
Outgoing Rules

Here you can define outgoing rules for the text messages, decide for each prefix, real or made up, which mobile module (interfaces from mobile1 up to mobile4) will be used for sending out the respective SMS messages:


Outgoing rules
Nr Status Prefix Ignore Interface Action
1 Enable 072 00 mobile1 Edit Del
2 Enable 074 00 mobile3 Edit Del
3 Enable 076 00 mobile2 Edit Del
4 Enable 077 00 mobile4 Edit Del
5 Enable 078 00 any Edit Del
6 Enable 2 01 mobile2 Edit Del
7 Disable 1 01 mobile1 Edit Del
New
Save
Cancel
Default

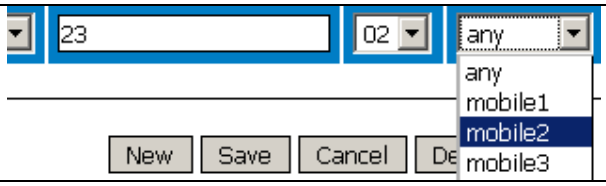
At first the table has no rules, you must use **New** to add new records:

(Note that later you can enable or disable each rule)



and **Edit** to and modify them:

complete the fields for prefix, digits to be ignored, and interface to be used.



You can set different rules for voice calls and for text messages!

Explanation of the seven outgoing rules defined in the first table:

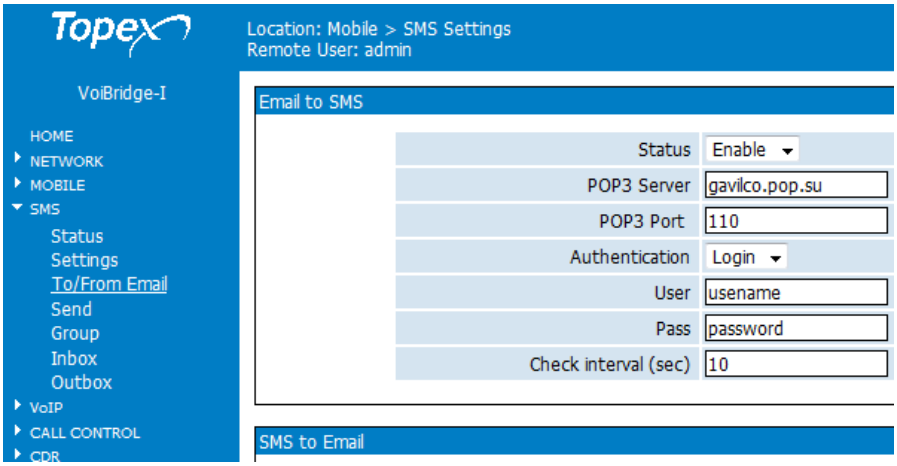
- First, you can assign “normal’, straightforward routes for minimum costs: each text message will be sent out via the module registered in the destination network.
  Thus, text messages for destination numbers beginning with 072 will be routed via mobile1 interface, which has a SIM card for the network operator who has 072 prefixes, text messages for destination numbers beginning with 076 will be routed via mobile2 interface, which has a SIM card for the network operator who has 076 prefixes, and so on.
- Finally, the rule no. 5 says that SMS's with 078xxxxxxx destinations, for which there is no dedicated mobile module, may be routed through any available mobile interface!

- But you can also force direct routing of messages, no matter which is the “real’ phone number of the destination.
  For instance, if you want to output a text message through mobile1 interface, you dial a “1” before the destination number.

- The message will be routed via interface1, and the fist digit, which was not a real one, will be ignored.
  Similar, when you want to use the mobile2 interface, you will dial a “2” before the telephone number.

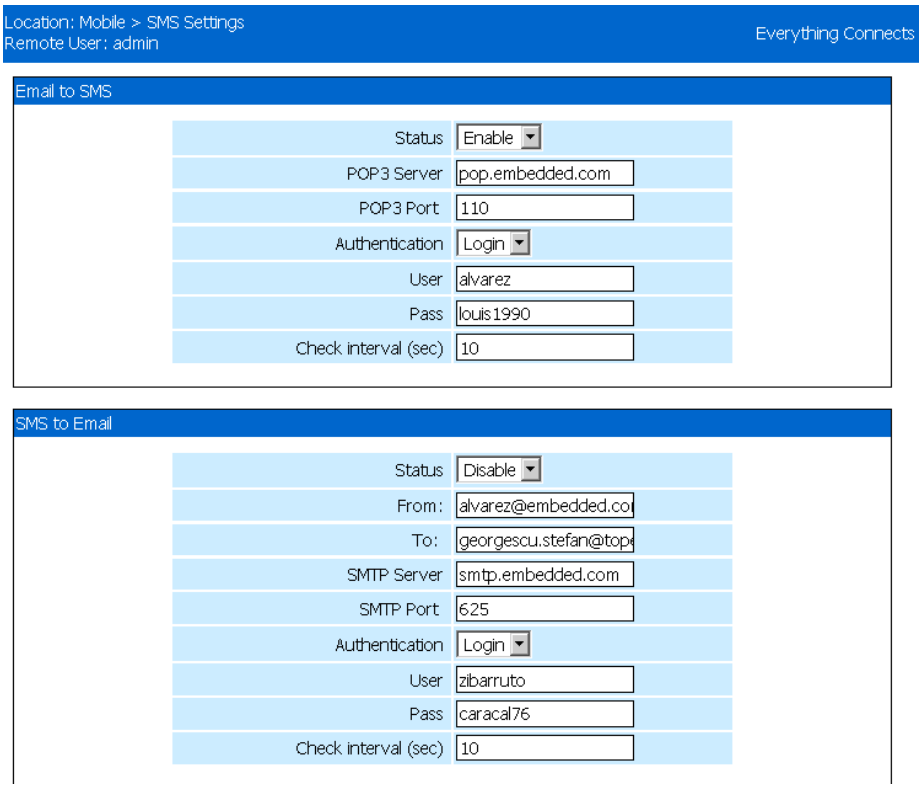
6.5.3 To/From E-Mail

This page controls the E-mail2SMS and SMS2E-mail features.



First, you set up the parameters for the mail gateway application, then you may decide to enable or disable each of the features.

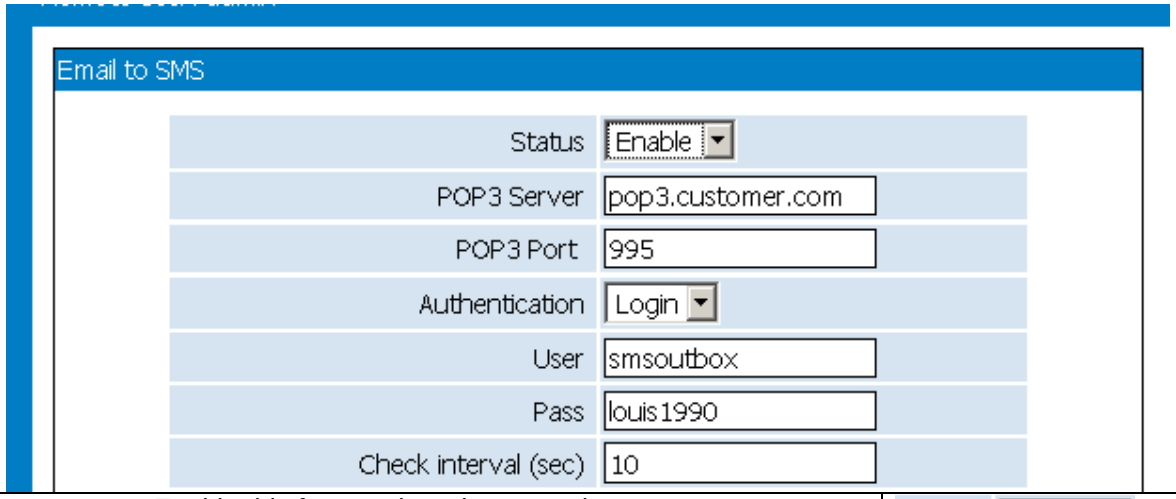
For instance, when SMS to Email is disabled, as shown in the next example, the received messages will be shown in the “Receive” page.
But if you enable this feature, the SMS messages, as soon as they are received, will be sent out as e-mail messages, then **erased**.

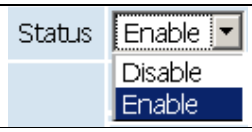


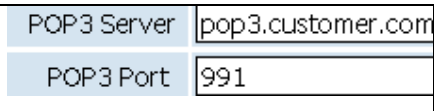
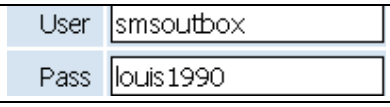
E-mail to SMS

Settings for sending out of e-mail messages as SMS:

You should use a special (dedicated) e-mail account for this.



Status: you must Enable this feature, in order to use it. By default it is disabled.	

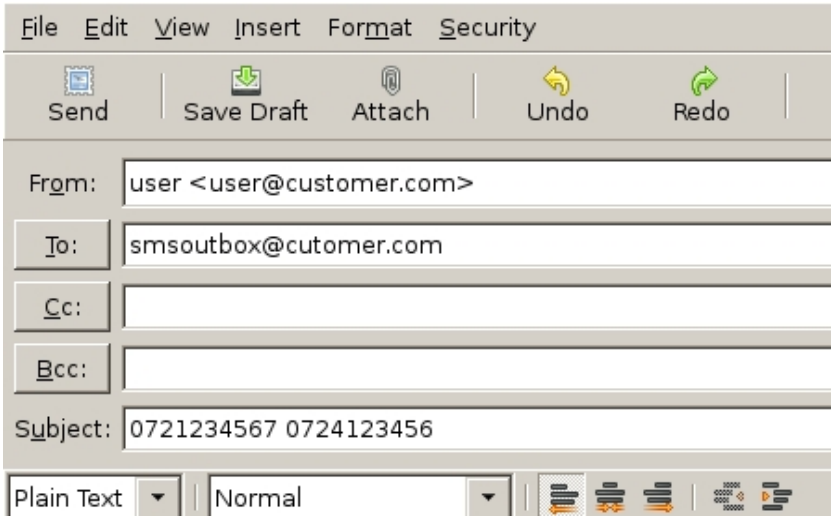
Settings for the incoming mail server (POP3), the address and the port to be used for the "customer". Some mail server may use different port numbers, such as 465 or 991, instead of the standard one.	
User name and associated **password** for the mail account "SMS Outbox".	

Authentication – method used for authentication, must be set according to the actual requirements of the POP3 mail server.	

Check interval – you set the value, in seconds, when VoiBridge Litechecks for new e-mail messages to send out as SMS	

Using E-mail to SMS feature

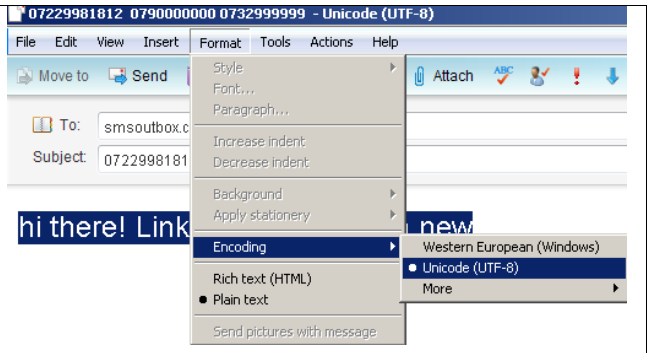
You must set up your mail client accordingly.
The messages are sent out from the account called “User@customer.com“ and the destination is “SMS Outbox”.



The message must be sent as **Plain Text**, not HTML, and will be cut (truncated) at 160 characters.

Also, you should use either ASCII or Unicode (UTF-8) encoding.

In the “Subject” field, enter the phone numbers as destination for the SMS.
You may type a single mobile number, or several phone numbers, *using blank space as a delimiter,* as you can see in this example.



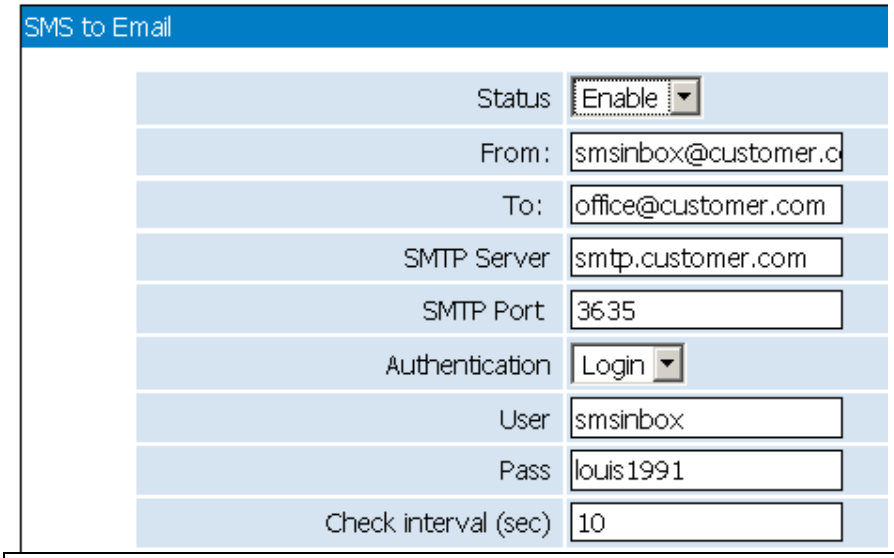
The respective e-mail message will be sent out as a SMS to all the mobile phone numbers you have entered in “Subject”.

In the example below, a VoiBridge I4-GSM gateway has received, among other text messages, the ones sent out by another mobile gateway using the mail-2-SMS feature (form phone number with 07222 prefix):

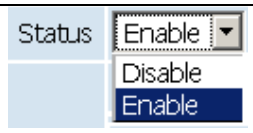
3	11.09.10 17:36:29 GMT+02	40727221091	test sms 1
4	11.10.10 12:32:49 GMT+02	40722256660	Fosto время как в истории?
5	11.10.10 12:25:34 GMT+02	40722256660	maccess to sms mail
6	11.10.10 12:10:54 GMT+02	40722256660	maccess test to sms

SMS to E-mail

Settings for the reciprocal feature, which converts received SMS into e-mail messages

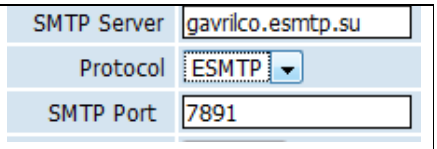
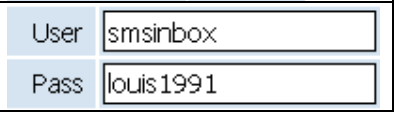


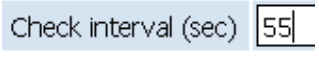
Status: you must Enable this feature, in order to use it.
By default it is also disabled.
When you Enable SMS-to-Email, the received messages will no longer be seen in Receive, because they are deleted as soon as they are sent out as E-mail messages.



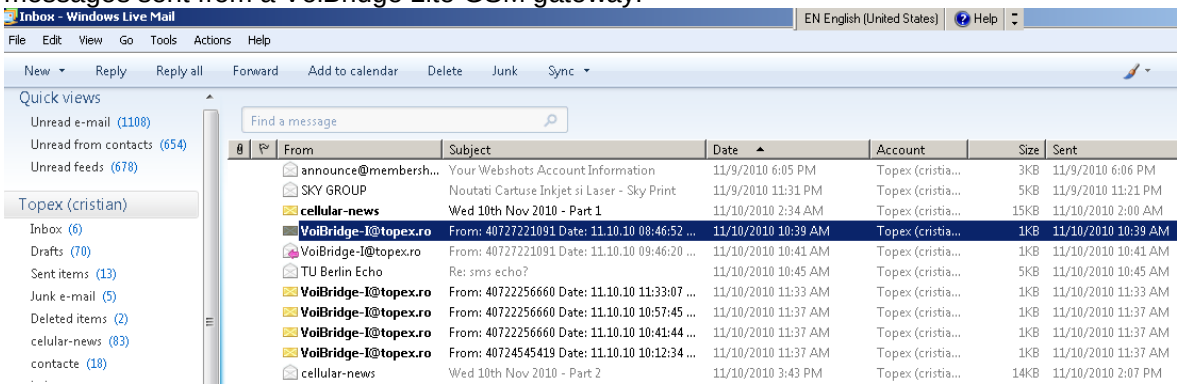
From/To mail settings.
In the FROM field you can enter any address, it is not a “real” e-mail sender. However, you should use a meaningful name.

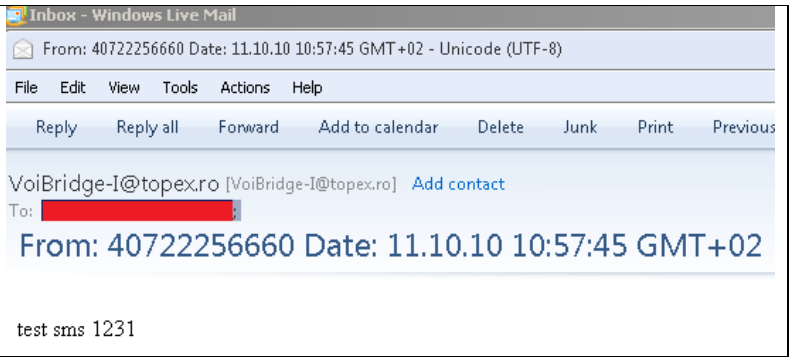
In the above example, the secretaries at “office” will know that the e-mails coming from the sender “SMS Inbox” are in fact converted SMS messages, and may set up their mail client to process these messages accordingly.

Settings for the incoming mail server (SMTP), such as *smtp.access4less.net* or *smtp.emailsrvr.com*, the protocol to be used (classic SMTP or Extended SMTP) the address and the corresponding port to be used for the “customer”. Some mail server may use different port numbers, such as 3535 or 7891, instead of 25 which is the standard ones.	
Authentication – method used for authentication, must be set according to the requirements of therespective SMTP mail server. You may choose either no authentication, plain text password, or with log-in.	
User name and associated password for the mail account SMS inbox.	

Check interval – you set the value, in seconds, when VoiBridge Litechecks for new SMS to send out as e-mail messages	

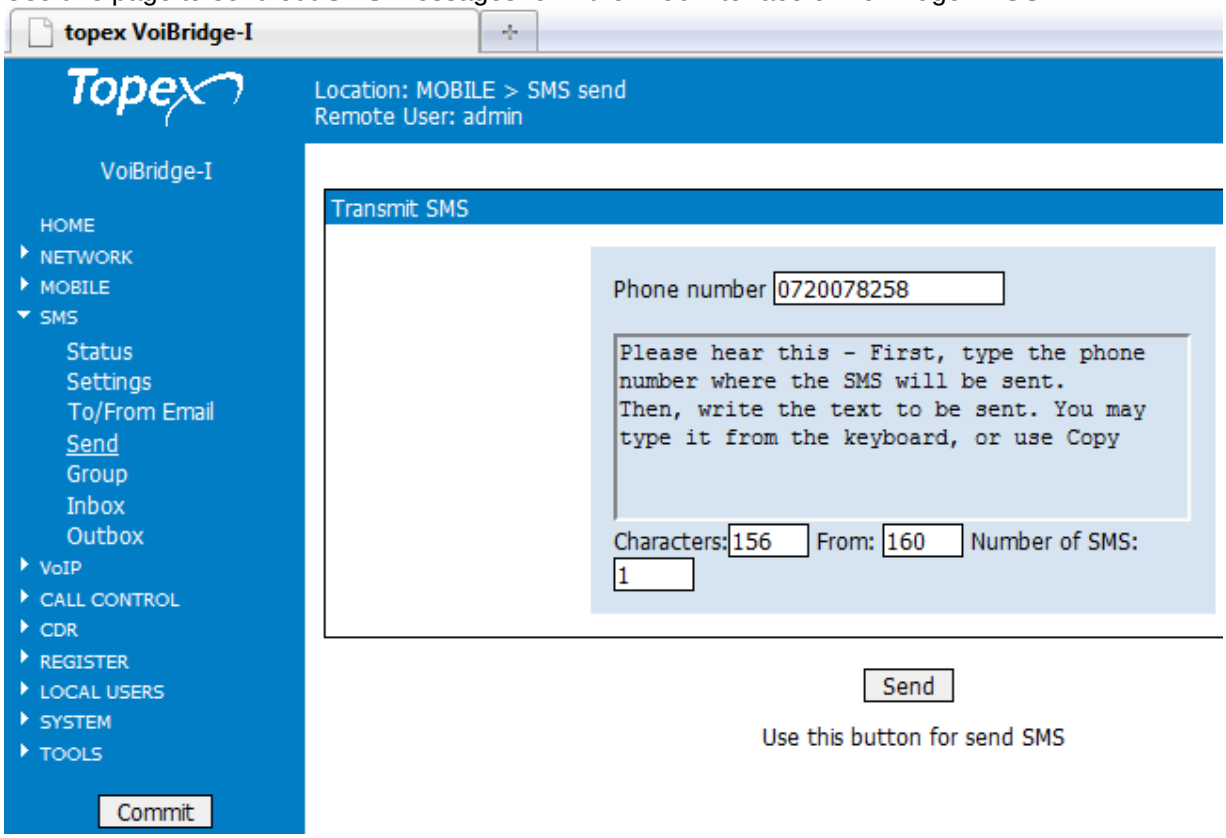
The example below shows a topex account into which were received, among usual e-mails, mail messages sent from a VoiBridge Lite GSM gateway:



The messages come form the account „VoiBridge-I@company.ro” and have the Subject: from <<phonenumber 07222xxxxxxxxx>> Date yyyyyyyyyyyyyy, as shown to the right:	

6.5.4 Send

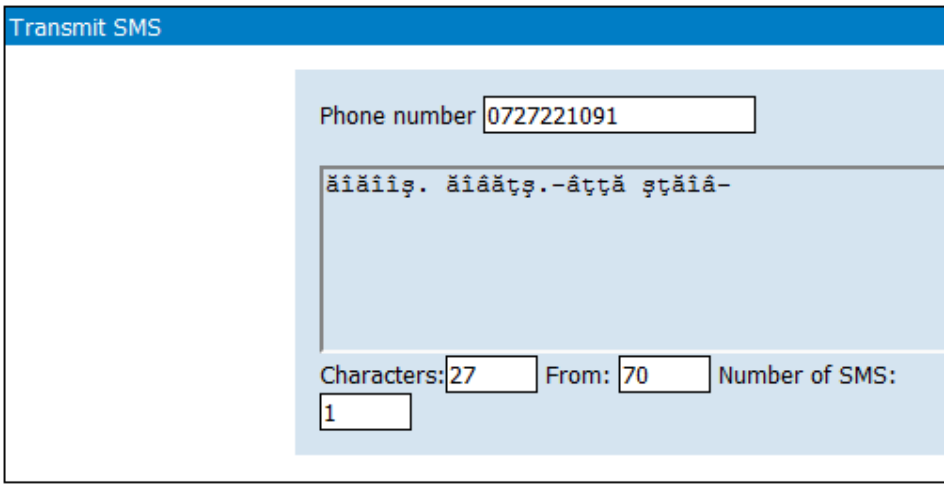
Use this page to send out SMS messages form the Web interface of VoiBridge I4-GSM.



Fist, type the phone number where the SMS will be sent. Then, write the text to be sent. You may type it from the keyboard, or use Copy and Paste to import text from other applications (mail, word processing, etc)
For standard ASCII characters, the maximum length is the standard one for SMS, **160 characters**.
The window “Characters” show you how may characters you have already typed, 91 out of 160 in the above example.

Non-ASCII text

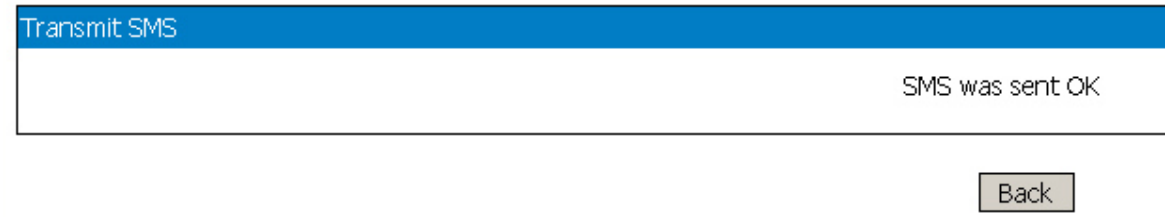
VoiBridge Liteallow you to send also **non-ASCII** characters, for alternate character sets such as Cyrillic, Greek, Hebrew or Central European, but in this case the maximum length is only **70 characters**, as shown in the next example:



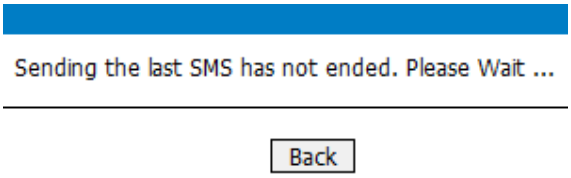
To send the message, press the Send button located at the bottom!

You will see the message “SMS is sending, please wait”:

Then, in case of successful transmission, you will see the confirmation message on the screen:



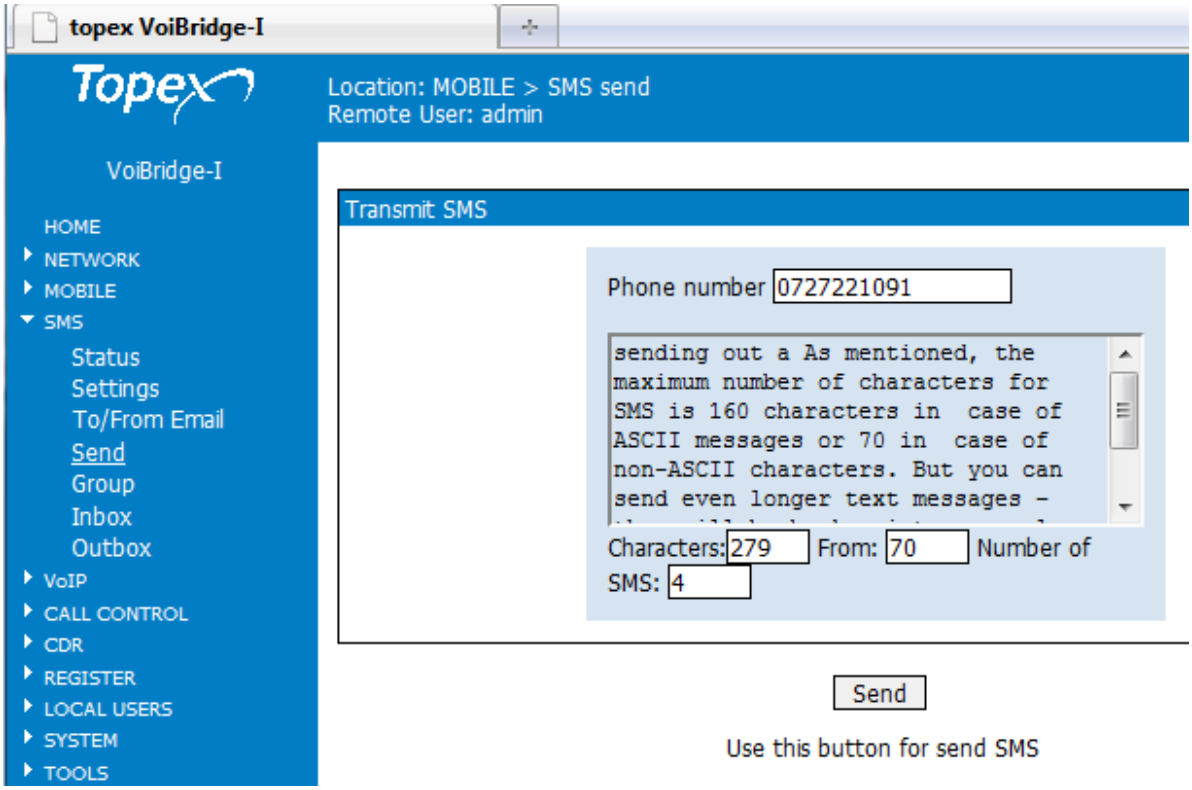
When the message could not yet be sent, you will see a warning instead:



Use the Refresh or Reload button of your browser to get out of this page.

Long Messages

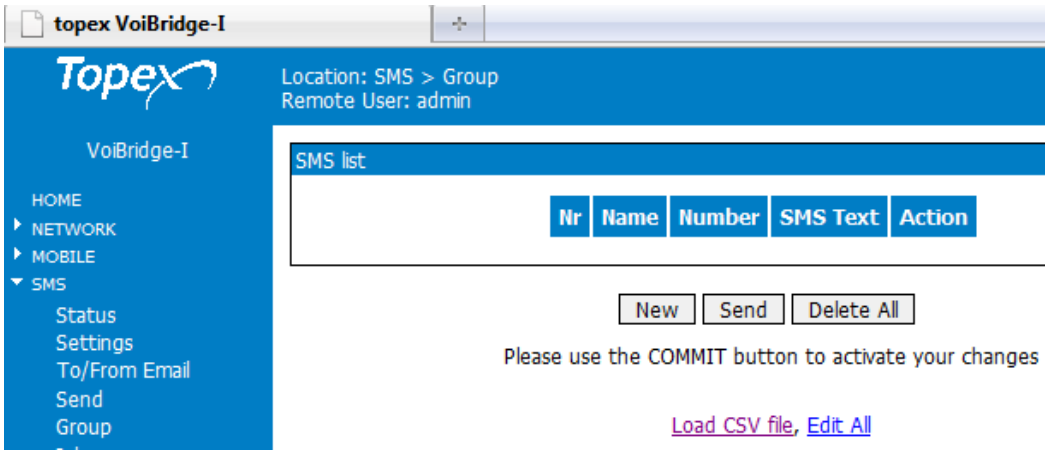
As mentioned, the maximum number of characters for SMS is 160 characters in case of ASCII messages or 70 in case of non-ASCII characters. But you can send even longer text messages – they will be broken into several consecutive SMS, and sent one after another to the destination number.
The last box at the bottom of the “Transmit SMS” window shows you the “number of SMS” – this is 1 for a normal message, less than 160 characters long, or 4 in the example below:



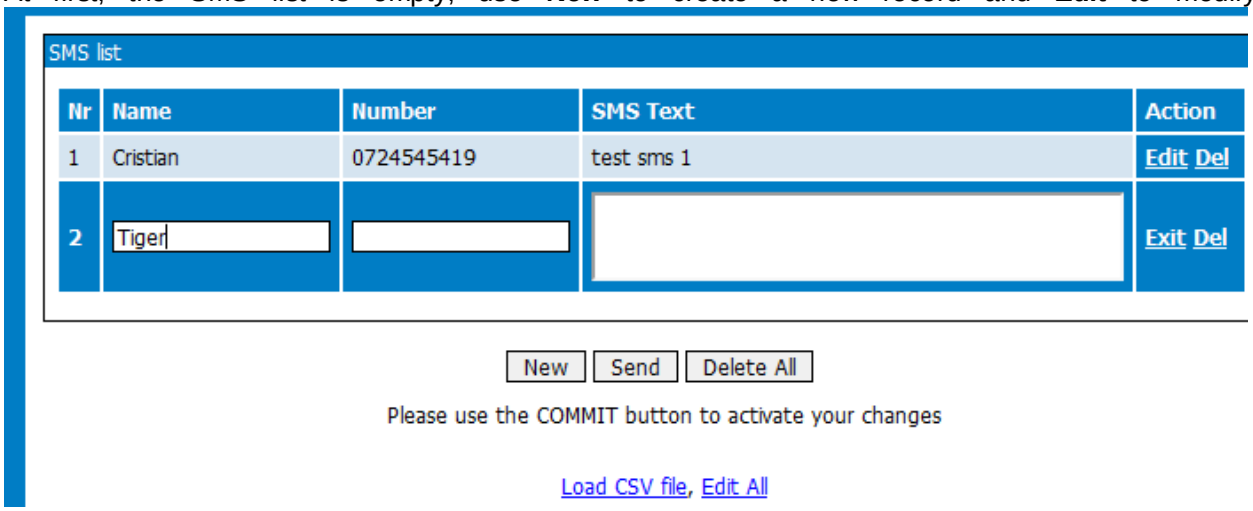
This means that the long message, with 270 non-ASCII characters, will be sent out as a succession of four SMS messages with a maximum length of 70 characters each!

6.5.5 Group

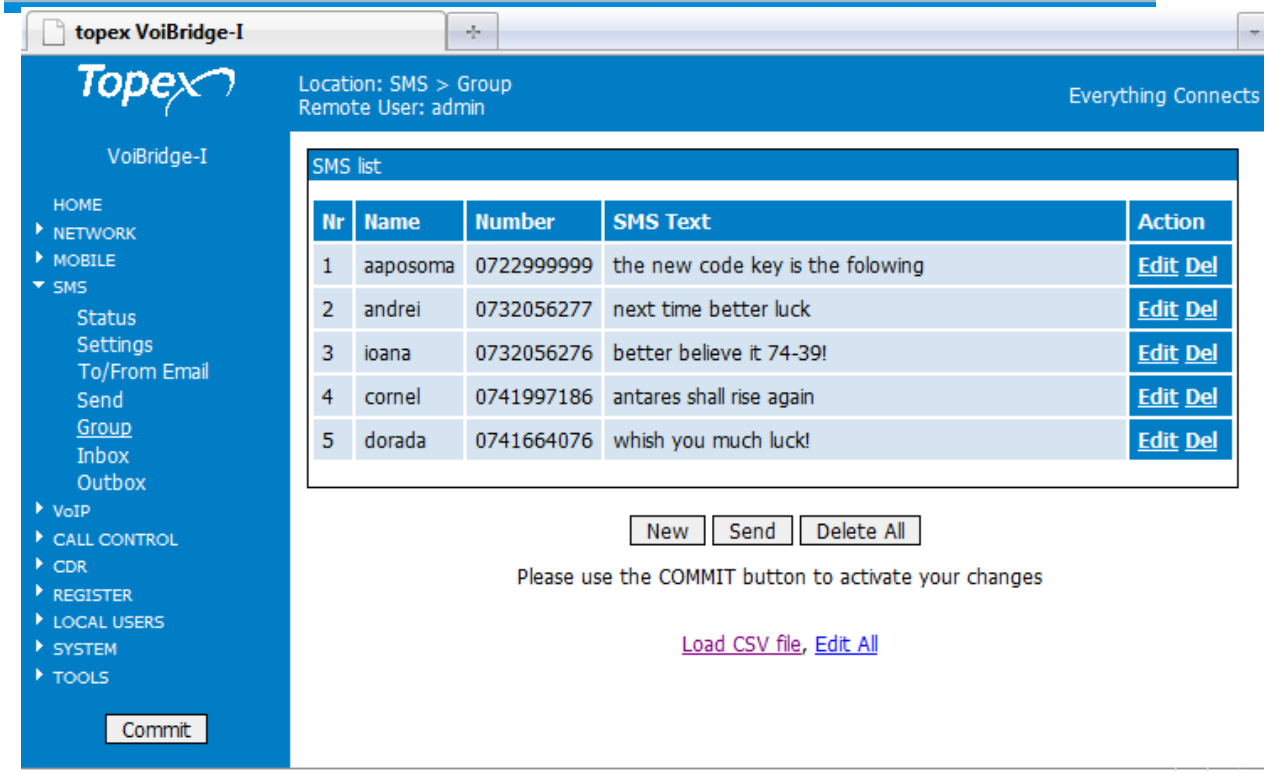
This feature allows you to send group messages, that is text messages to several phone numbers, in single operation.



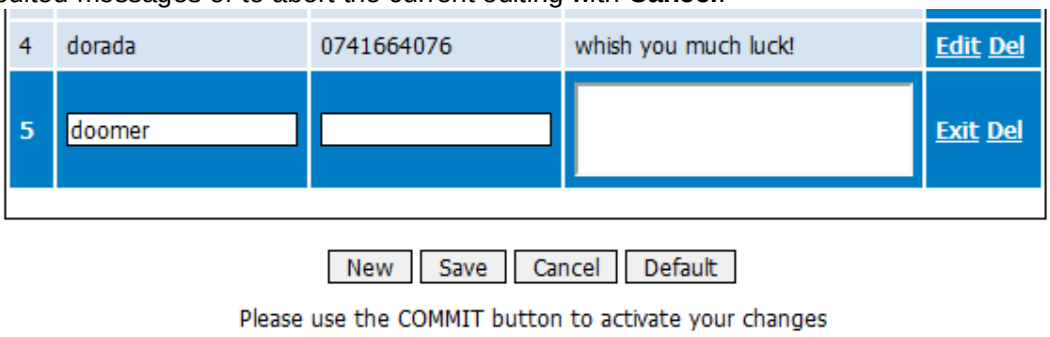
At first, the SMS list is empty, use **New** to create a new record and **Edit** to modify it:



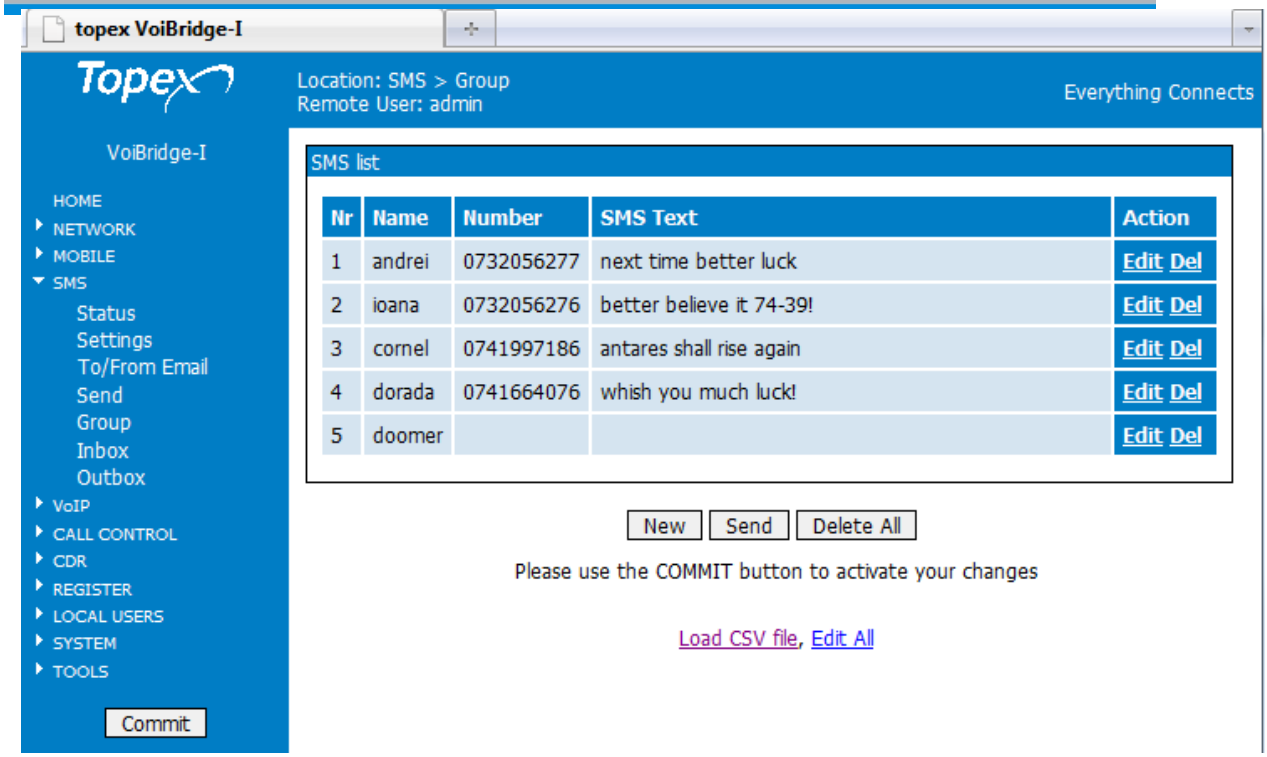
The first field is the name of the recipient of the message. This name is memningful for the human operator only, VoiBridge Lite has no use for it. The next field is the destination phone number, and the last one, the text of the SMS message to be transmitted:



After you finished editing all fields in a row, the buttons at the bottom change, allowing you to **Save** the edited messages or to abort the current editing with **Cancel**.

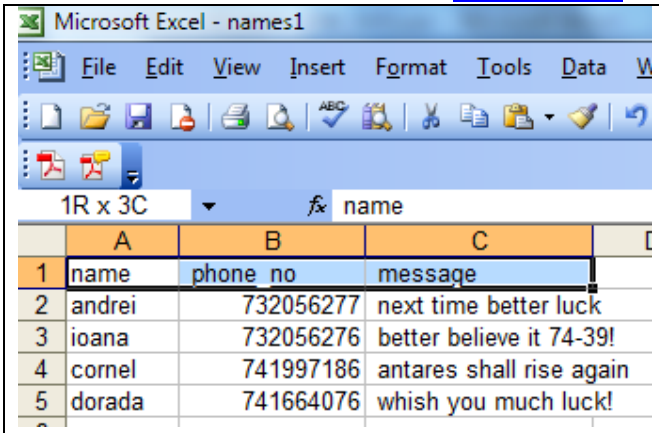


When you have finished editing all rows, the buttons change again, now you have the option to press **Send** to transmit the messages, or **Delete All** to delete all the rows in a single operation.



Load CSV

One of the links at the bottom of is "Load CSV file".

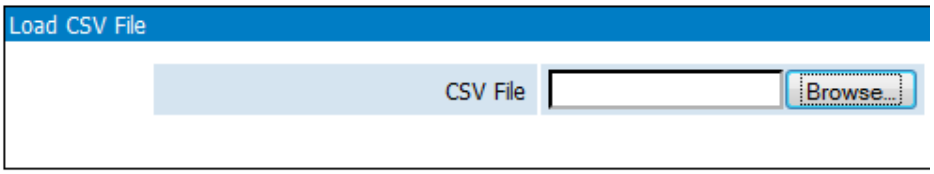

Microsoft Excel - names1
File Edit View Insert Format Tools Data
1R x 3C
name
A B C
1 name phone_no message
2 andrei 732056277 next time better luck
3 ioana 732056276 better believe it 74-39!
4 cornel 741997186 antares shall rise again
5 dorada 741664076 whish you much luck!

You can use it to load a **CSV** (comma separated value) file previously created that holds the names, telephone numbers and messages to be sent.

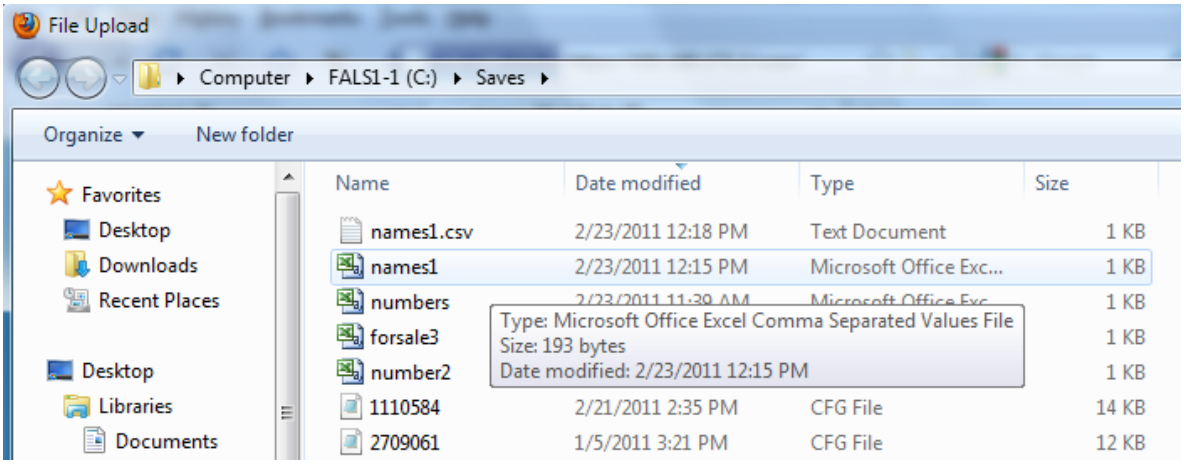
Such a file may be created by using Microsoft Excel or a simple text editor, such as Notepad.

The values for name, telephone number , and text of the message must be separated by commas.

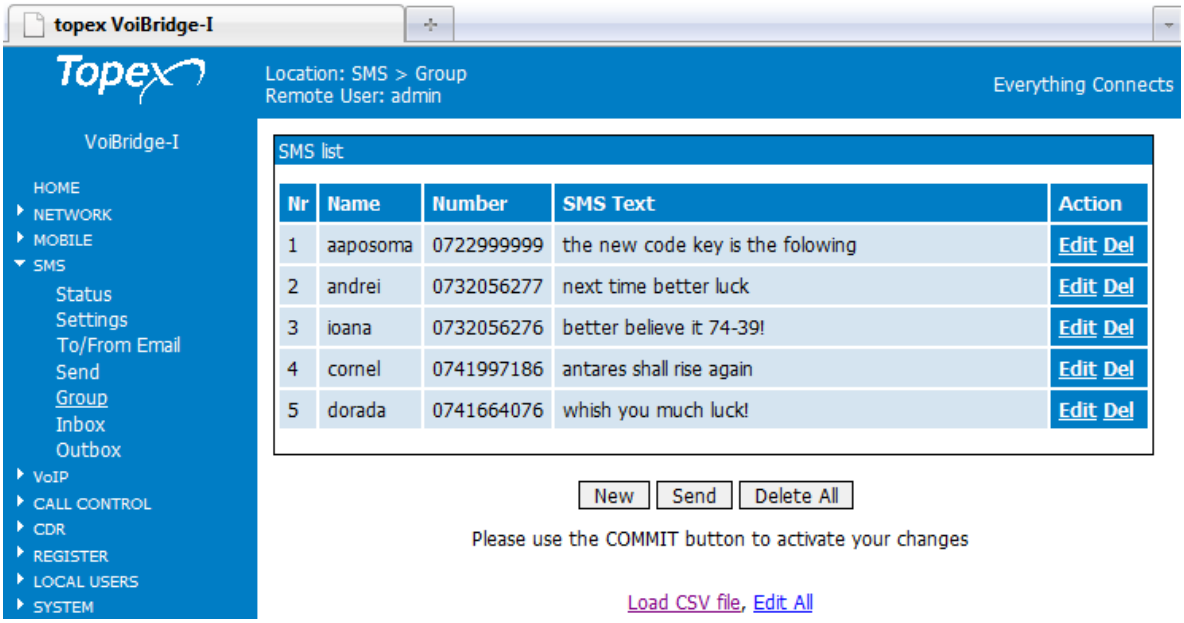
Use the **Browse** button to look for the .csv or .txt file to be loaded:



Navigate in the folders of your computer, and select the .csv file of interest to you:



Then use the button **Load** to load the respective file into the VoiBridge Liteequipment.

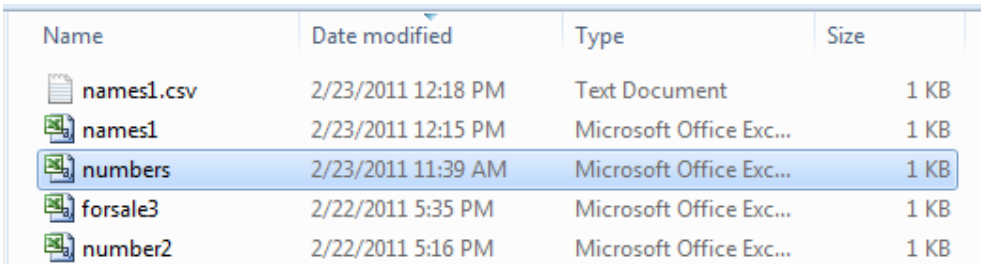


You can review, edit or delete each row of the SMS list (every line corresponds to a SMS message), then press Send to send out all the messages.
Of course, the transmission won't be simultaneous, VoiBridge Litesends out the messages one after another, starting with the one located at the bottom.

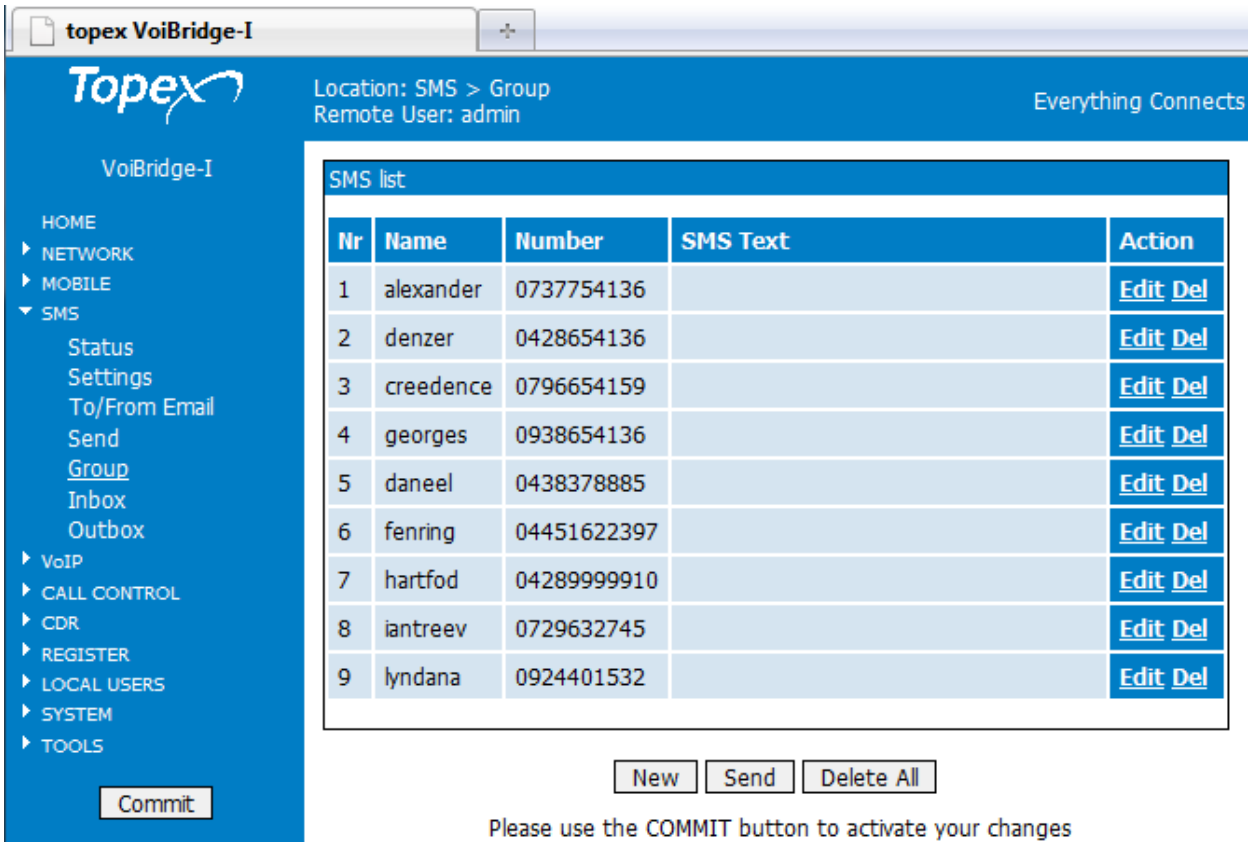
Following a successful transmission, if you no longer need the messages, you can delete all the rows in the SMS list by using the button "**Delete All**" located at the right, below the SMS list.

Group sending of a common message

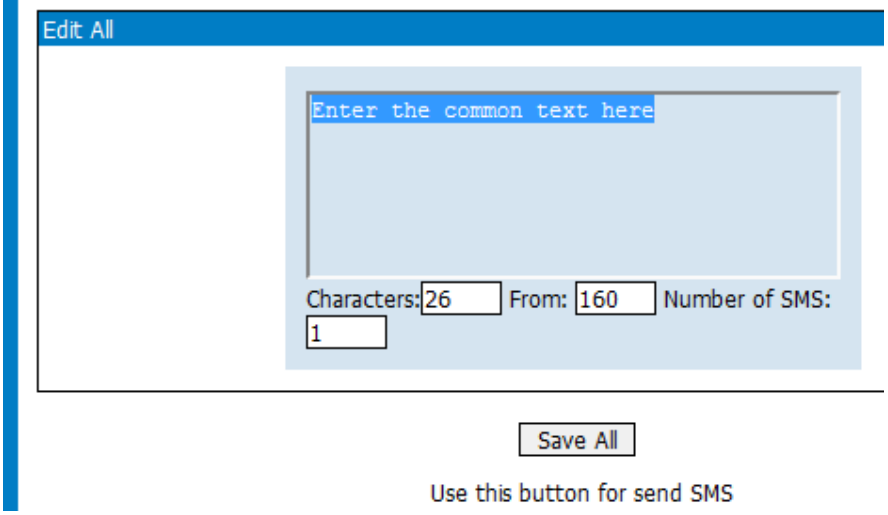
A variant of the group SMS operation is when you need to send a single message to several recipients (phone numbers). This is a particular case, when the CSV file contains only names and telephone numbers, the “text” filed is empty.
To send out the same text message to several destinations, load the CSV file with the corresponding numbers:


Name
Date modified
Type
Size
names1.csv 2/23/2011 12:18 PM Text Document 1 KB
names1 2/23/2011 12:15 PM Microsoft Office Exc... 1 KB
numbers 2/23/2011 11:39 AM Microsoft Office Exc... 1 KB
forsale3 2/22/2011 5:35 PM Microsoft Office Exc... 1 KB
number2 2/22/2011 5:16 PM Microsoft Office Exc... 1 KB

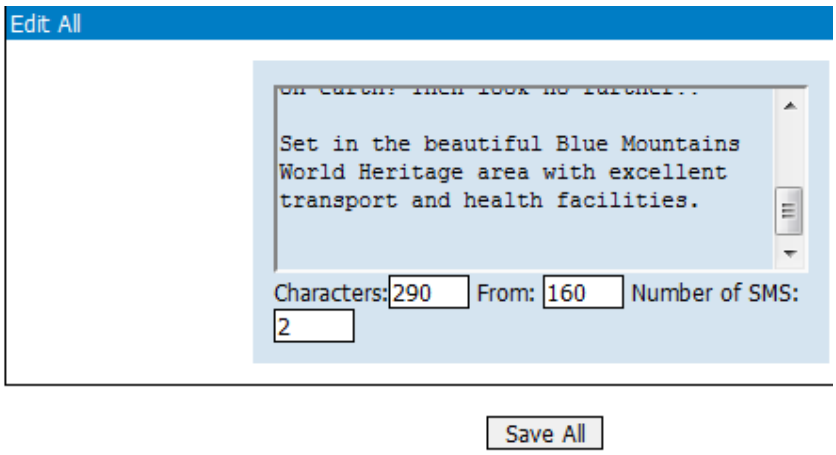
You will see a SMS list with names and corresponding telephone numbers, but without any text for the SMS message to be sent out:



Now use the link “Edit All” located at the bottom right, to edit all the SMS Text fields at once:



In this window, you can either enter the text by typing, or paste it from a location where you copy the text of interest:



Use “Save All” button to save this text into all the rows of the SMS list:

SMS list

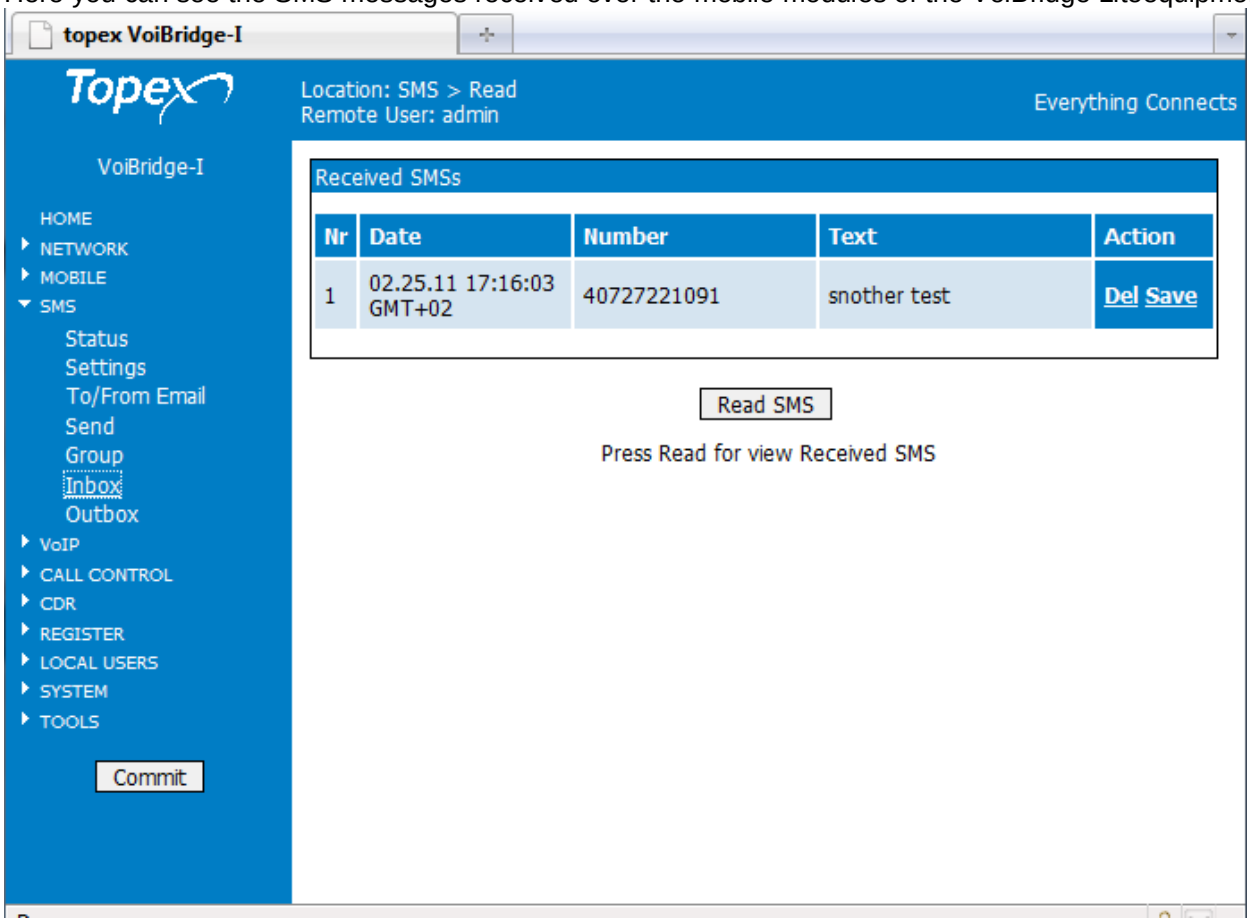
Nr	Name	Number	SMS Text	Action
1	alexander	0737754136	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
2	denzer	0428654136	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
3	creedence	0796654159	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
4	georges	0938654136	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
5	daneel	0438378885	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
6	fenring	04451622397	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
7	hartfod	04289999910	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
8	iantreev	0729632745	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del
9	lyndana	0924401532	Blue Mountains for the discerning buyer ($715 000) Blue Mountains, New South Wales Advertiser type: Private Sale Looking for a piece of heaven here on earth? Then look no further!! Set in the beautiful Blue Mountains World Heritage area with excellent transport and health facilities.	Edit Del

New Send Delete All

After a final review, where you can edit or delete the existing rows, or add a new one, now you can start the process of transmitting the common message to all the destination numbers by simply pressing the **Send** button!

6.5.6 Inbox

Here you can see the SMS messages received over the mobile modules of the VoiBridge Liteequipment.



Click the "**Read SMS**" button at the bottom to refresh the list of messages.

Received SMSs

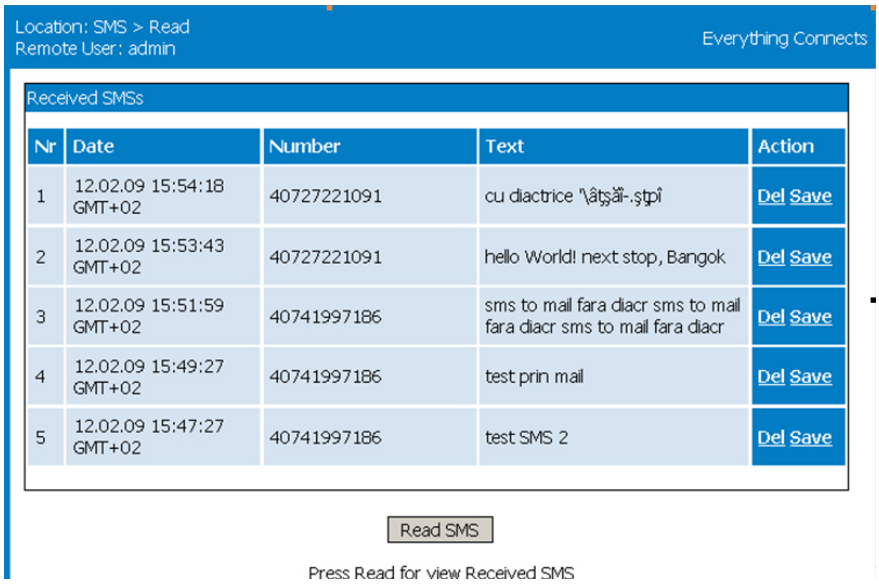
Nr	Date	Number	Text	Action
1	12.02.09 15:54:18 GMT+02	40727221091	cu diactrice "\âţşăî-.ştpî	Del Save
2	12.02.09 15:53:43 GMT+02	40727221091	hello World! next stop, Bangok	Del Save
3	12.02.09 15:51:59 GMT+02	40741997186	sms to mail fara diacr sms to mail fara diacr sms to mail fara diacr	Del Save
4	12.02.09 15:49:27 GMT+02	40741997186	test prin mail	Del Save

Date: shows not only the date, but also the time when the message has been sent, up to seconds. Also, the time zone, such as GMT+2 in case of Bucharest. Remember, this is not the time when the SMS was received by VoiBridge-I, but rather when it has been transmitted, usually set by the mobile carrier.

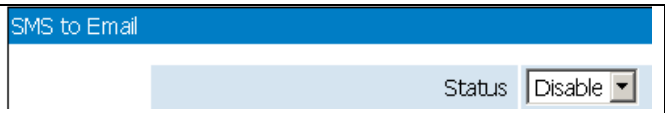
Number: phone number that has sent the SMS.

Text: the text of the message.

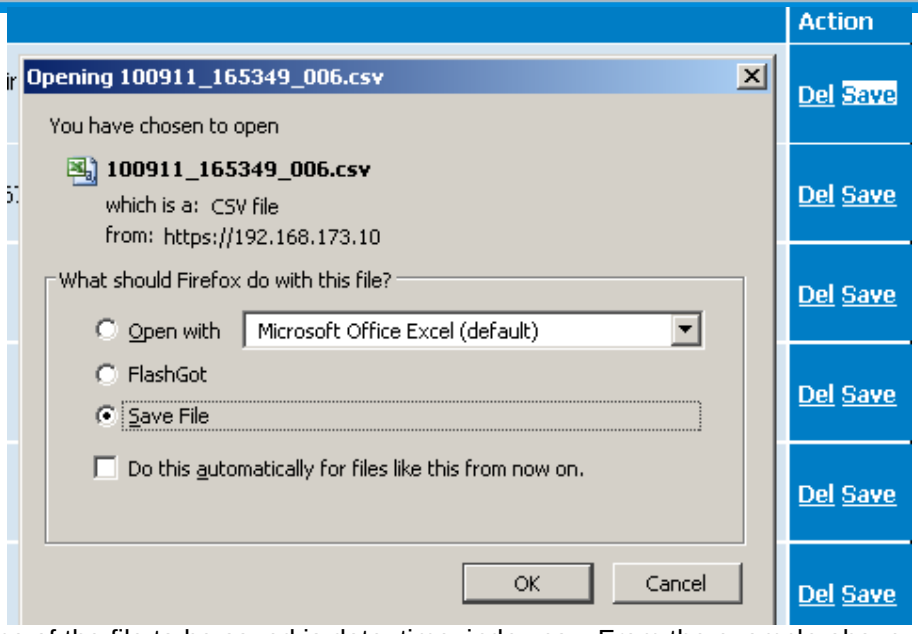
You can Delete or Save each of the received SMSs. These messages are stored in the volatile memory of the equipment, so if one SMS is of high interest, it should be save onto your computer, because it will be lost each time VoiBridge Liteis re-booted.



Warning!

The received messages are shown in this page only <u>when the feature "SMS to E-mail" is disabled</u>. *If it is enabled, the received SMS are sent out as e-mail, and then erased, so you won't be able to see them in the Receive list!*	

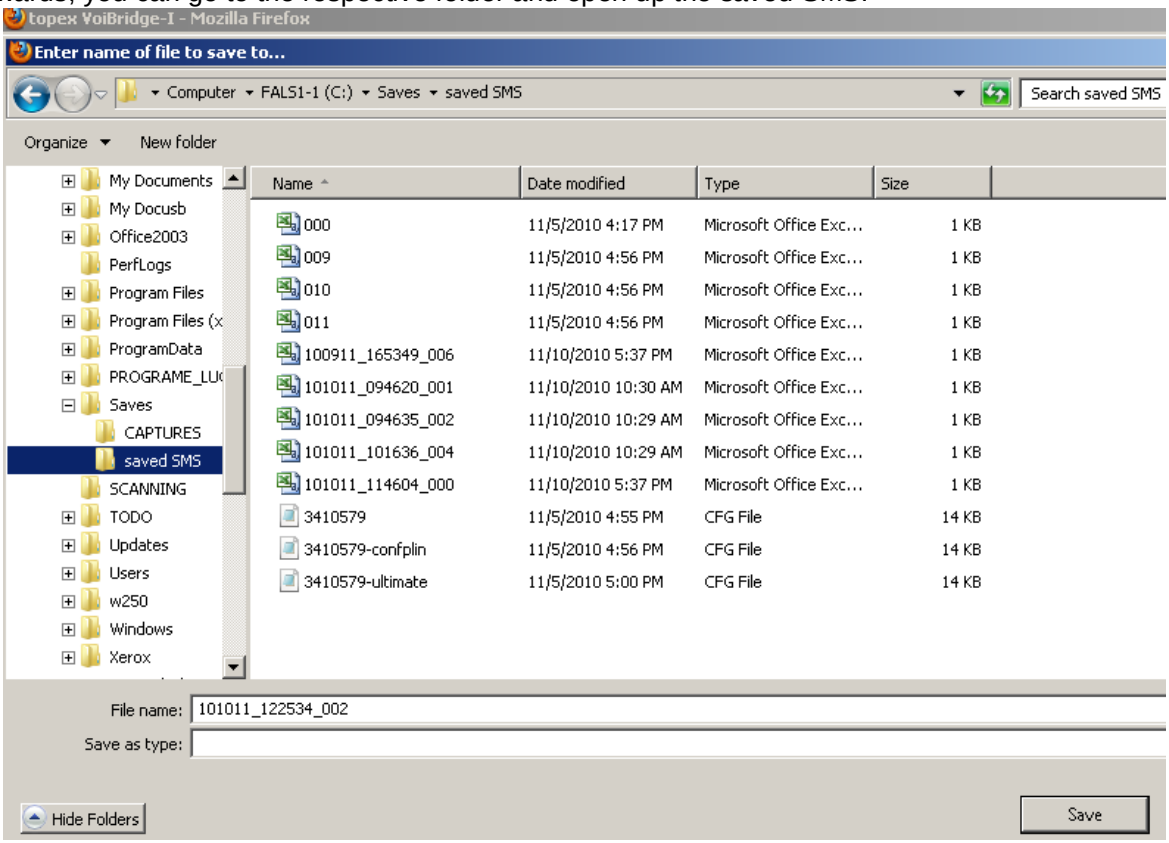
The last column, the field "Action", allows you to individually delete or save the SMS messages. Use "Save" to save the respective SMS in a folder of your choice, in format csv.	



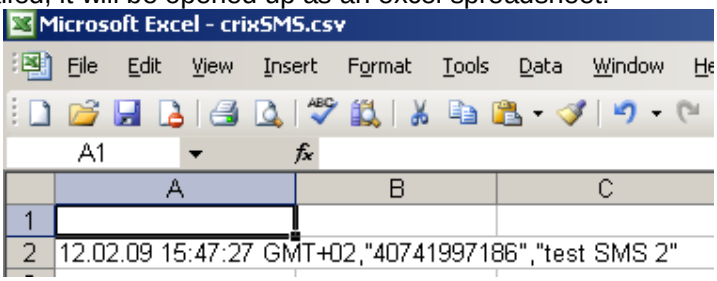
The default name of the file to be saved is date_time_index.csv. From the example above:

- the date 100911 means 2010, Nov 9th;
- the format for the time is hhmmss;
- 006 is a pseudo-random index, which allows you to save all messages, even those received at the same time, without bothering to rename them.

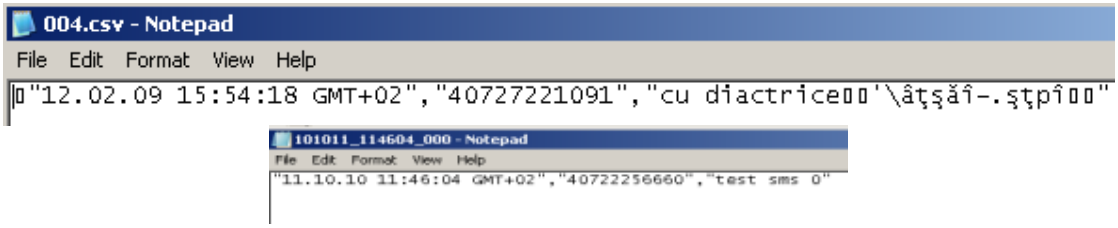
Afterwards, you can go to the respective folder and open up the saved SMS.



The “Comma Separated Values” format is understood by many applications, for instance if you have Office applications installed, it will be opened up as an excel spreadsheet:

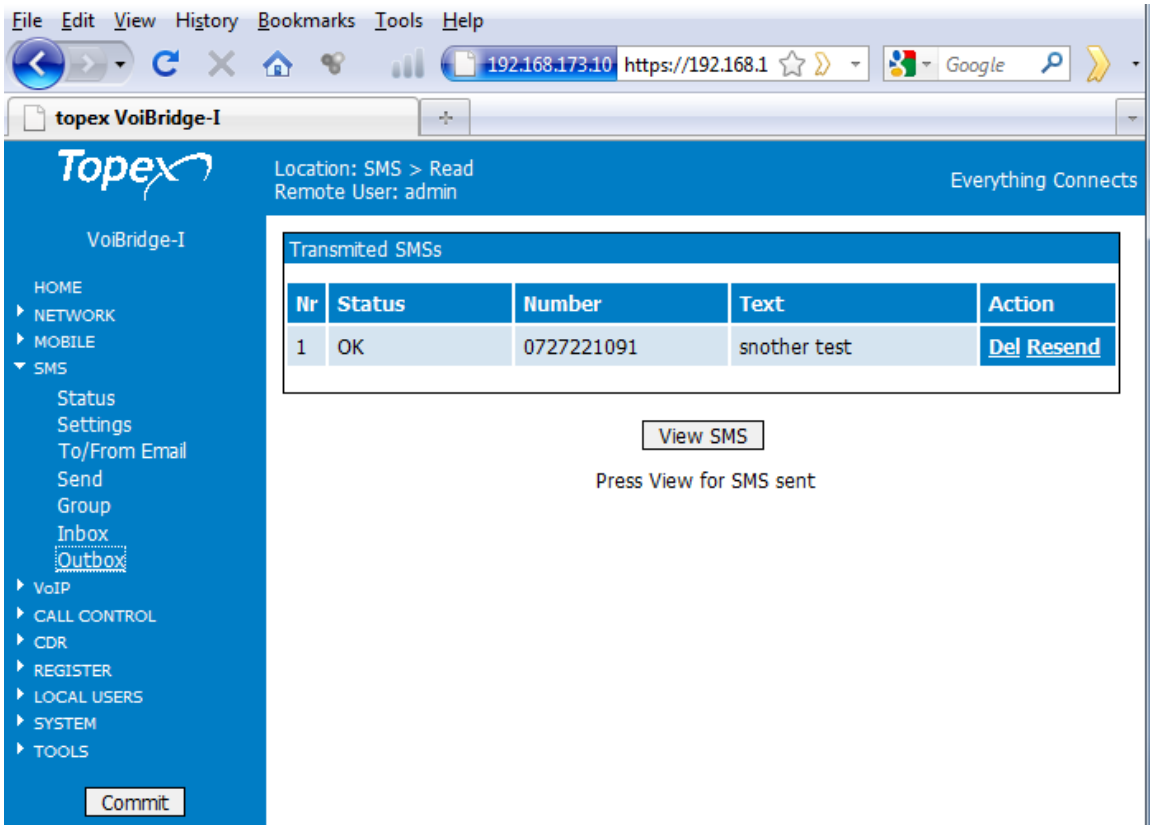


You don’t need to have the office-compatible applications installed, since the CSV files can be read by all text editors:

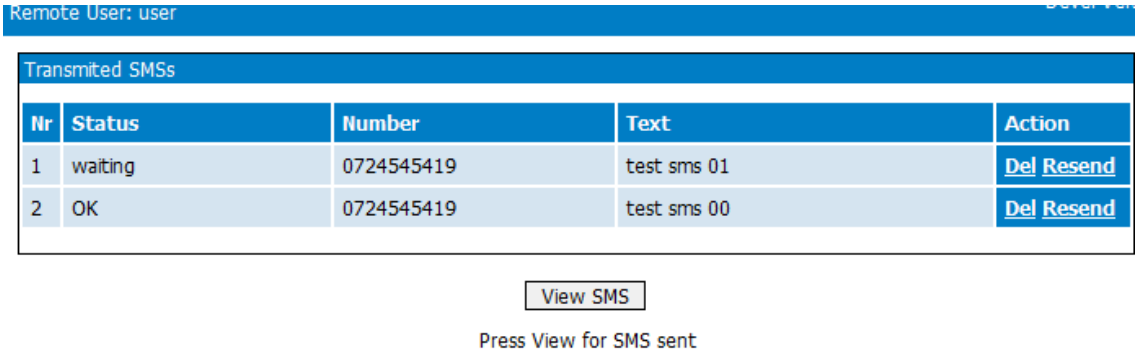

004.csv - Notepad
File Edit Format View Help
0"12.02.09 15:54:18 GMT+02","40727221091","cu diactrice00'\âţşâî-.şţpî00"
101011_114604_000 - Notepad
File Edit Format View Help
"11.10.10 11:46:04 GMT+02","4072225660","test sms 0"

6.5.7 Outbox

Similar to the *Outbox* folder of an e-mail application, shows the SMS messages that must be sent out via VoiBridge-I, and their current state:

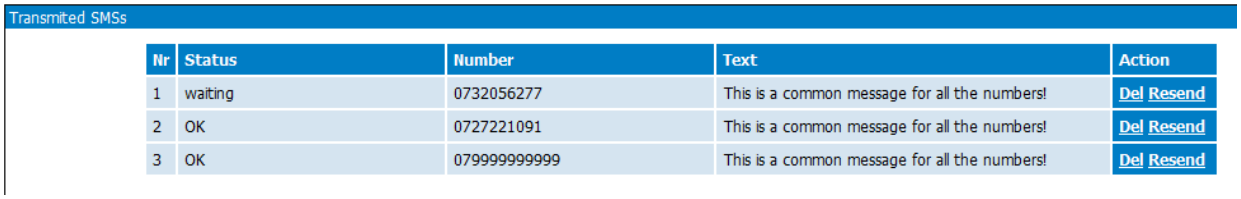


Press the button “View SMS” to see all the text messages which are in the Outbox:

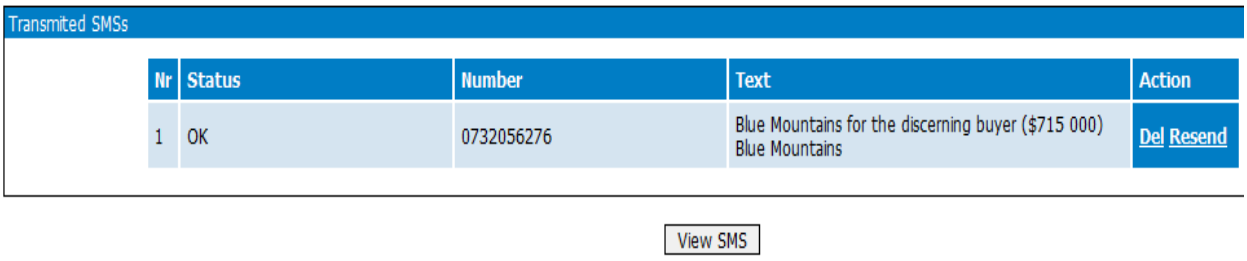

Remote User: user
Transmited SMSs
Nr Status Number Text Action
1 waiting 0724545419 test sms 01 Del Resend
2 OK 0724545419 test sms 00 Del Resend
View SMS
Press View for SMS sent

Since the messages are sent out starting with the one at the bottom, it is normal that SMS 2 has already been successfully sent, hence the message “OK”, while SMS 1 is still “waiting” to be transmitted.

In the next example, while sending out a “group” message (same text sent towards three recipients), the SMS has been successfully sent to recipients 2 and 3, while 1 must still wait – his message is in the process of being transmitted:


Transmited SMSs
Nr Status Number Text Action
1 waiting 0732056277 This is a common message for all the numbers! Del Resend
2 OK 0727221091 This is a common message for all the numbers! Del Resend
3 OK 079999999999 This is a common message for all the numbers! Del Resend

Finally, all the recipients in the list get their “common” message, so they confirm reception and they show up in the Outbox list with the status “OK”:

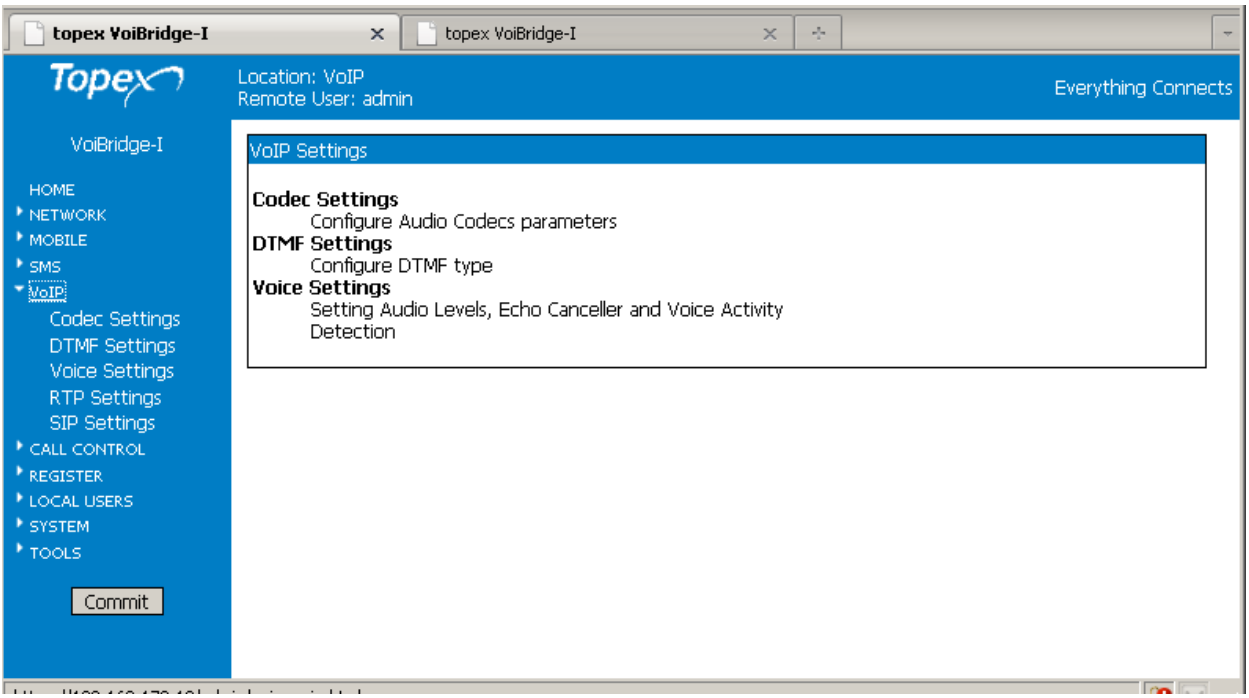

Transmited SMSs
Nr Status Number Text Action
1 OK 0732056276 Blue Mountains for the discerning buyer ($715 000) Blue Mountains Del Resend
View SMS

To the extreme right of the screen, he field **Action** allows you to **Del**ete or **Resend** every SMS message that shows up in the Transmitted SMSs list.

In the Outbox of an e-mail client, the e-mail messages are deleted after being successfully transmitted. Here on VoiBridge-I, the sent messages are kept, with the status “OK”, until the next transmission occurs. Then they are automatically deleted, to make room for the current messages which are waiting to be sent out via SMS service.

6.6 VoIP

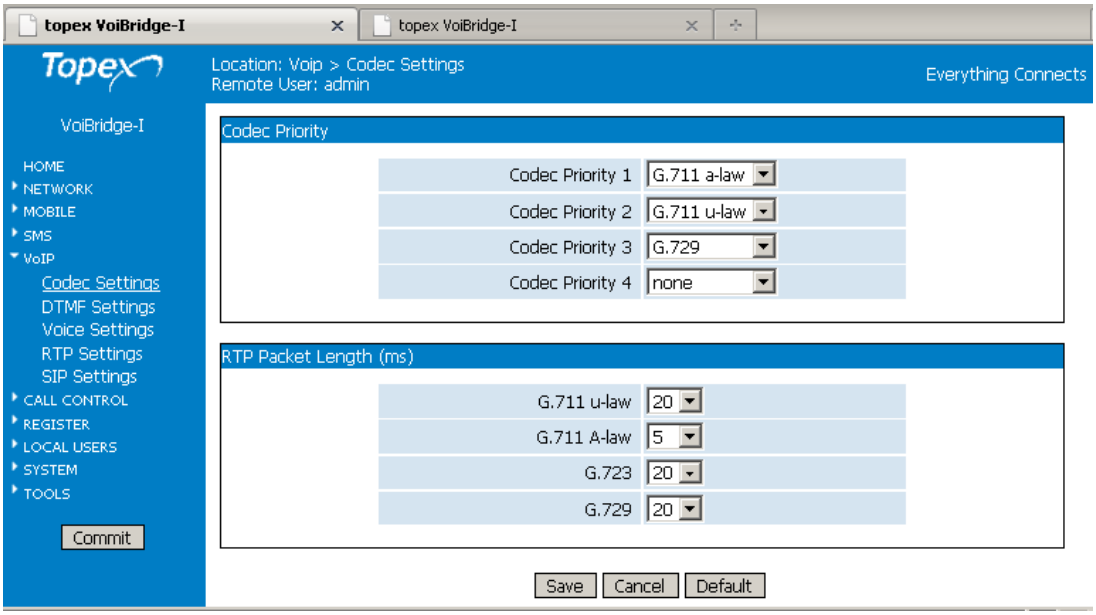
Allows one to configure the settings for Voice over IP aspect of the calls, related to the codecs used transmission of DTMF signaling, Voice settings, number of RTP ports used and respectively local port used for SIP.



Currently there are five sub-pages of settings, respectively Codec, DTMF, Voice, RTP and SIP:

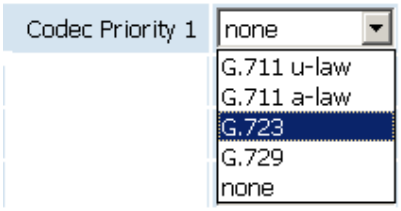
6.6.1 Codec Settings

Settings for the codecs used by the Voice over IP calls:



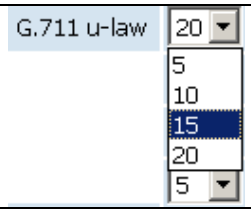
For each of the codecs used, you may set up its priority, and the duration of the corresponding RTP packets.

Codec priority

VoiBridge Lite supports several audio codecs, currently G.711 (both A-law and u-law), 723 and 729. There are four boxes, with decreasing priorities, from 1 down to 4. For each one, one may assign a codec, or select “none”. Generally one should enter the codec G.711 on the first place, either with A-Law for Europe or u-law for North America, followed by G.729. G.711 provides good voice quality and works well with in-band DTMF.	

If the IP-PBX or the SIP-telephones that will be connected with VoiBridge Litemake use of different codecs, one should set the “Codec Propriety” field accordingly.

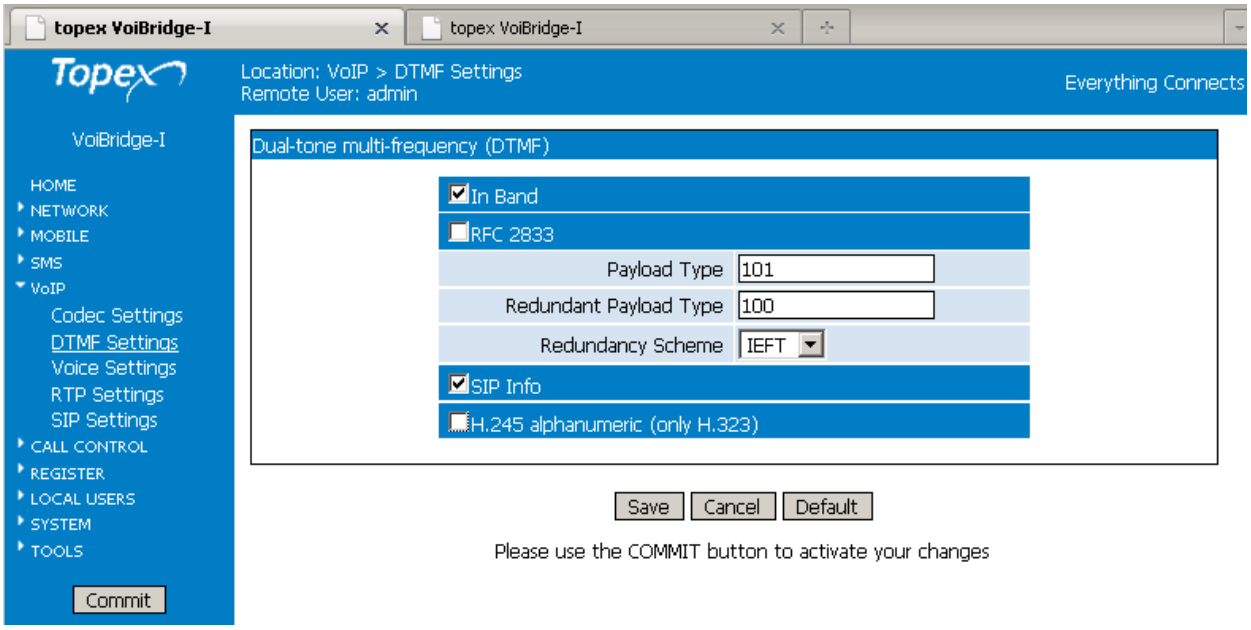
RTP Packet Length

It lets you establish the value for packetization time (in milliseconds) for each codec. It is usually set to 20, but it may be as long as 30 msec or as short as 5 msec. Increasing the packetization time reduces the packetization overhead, but increases the latency.	

Click Save to save the changes, Cancel to abort, or Default to return to the default settings in the Codecs page.

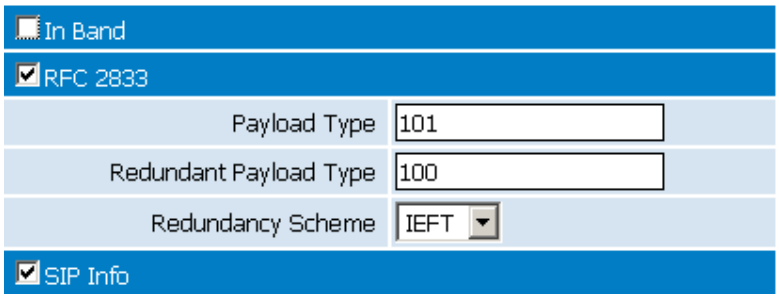
6.6.2 DTMF Settings

Settings for sending out DTMF in VoIP calls:



This configuration area establishes the means of sending out DTMF into the VoIP calls. There are three methods available, which may be used at the same time. Transmission of DTMF signaling can be done in band, out of band in RTP packets, or sending out INFO messages (as digital telephone-events).

Under the SIP protocol, the INFO method would be used for carrying of mid-call signaling information along the session signaling path (for example to send the DTMF digits generated during a SIP session). Check the box “SIP Info” for this way of transmitting DTMF.



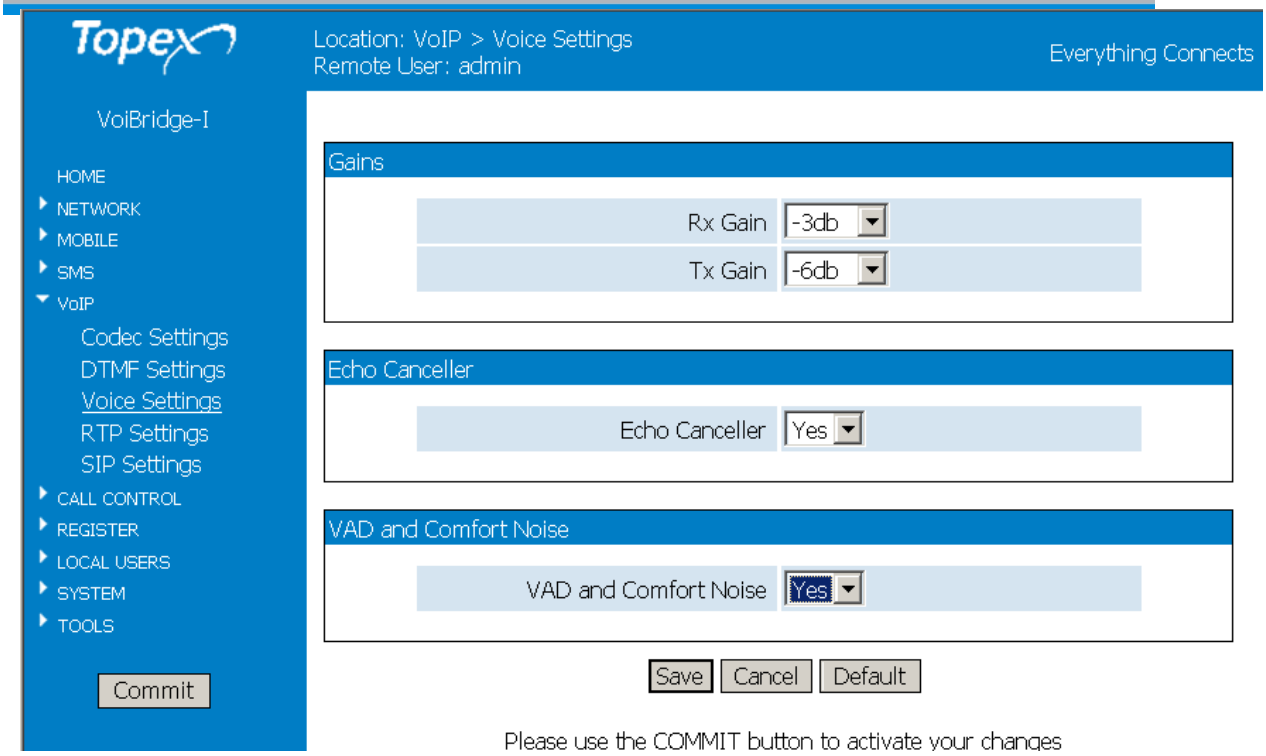
When checking this “RFC 2833” options, also complete the next Parameters fields to the right

- payload type for DTMF in RTP (according to RFC 2833)
- redundancy payload type
- redundancy scheme: either IETF or AAL2.

When you use H323 protocol for VoIP instead of SIP, you can select the option “H.245 alphanumeric”. The ITU-T H.245 standard specifies several ways of sending out DTMF. Tones are sent out over the H.245 signaling channel, rather than in-band with voice traffic via RTP channel.
Topex has implemented the alphanumeric version of the H.245 signal protocol for better compatibility - all H.323 version 2 compliant systems are required to support the "h245-alphanumeric" method, while the support for the "h245-signal" method only optional.

6.6.3 Voice Settings

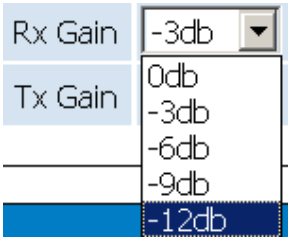
Adjust the voice parameters on the VoIP side of the equipment - gain (amplification), echo cancellation and respectively VAD:



Gain

In the same way as for the mobile modules, but for the Voice over IP section, here you can adjust the audio gain for reception and transmission.

Choose Rx or Tx, and form the drop list, select the amplification you want, from zero dB down to -12 db, in 3 dB increments.

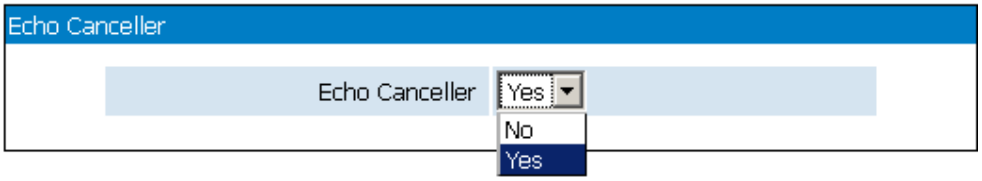


Definition of RX and TX

In this page for VoIP voice Settings, RX is the voice path going out from VoIP towards the mobile network, while TX is the reciprocal voice path, which comes from the mobile network towards VoIP. The meaning of Tx and respectively Rx are **reversed** compared to the page “Mobile Settings”!

Echo

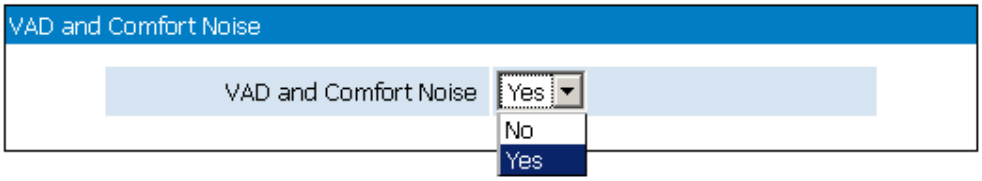
In telephony, “echo cancellation” means reducing or removing echo from a voice communication in order to improve voice quality of the calls.



Why the Echo Canceller of VoIBridgeI4 may be enabled or disabled:
Echo cancellation may be too powerful, or incorrectly applied. In echo cancellation, complex algorithmic procedures are used for computing models of speech. The actual format of the prediction of echoes must be learned by the echo canceller in a process known as adaptation. You must ensure that only one unit in the voice chain performs echo cancellation. If two echo-cancellation systems work in the same voice path, negative effects may arise, such as speech cutting in and out in both directions, and even increased echoes!

Voice VAD

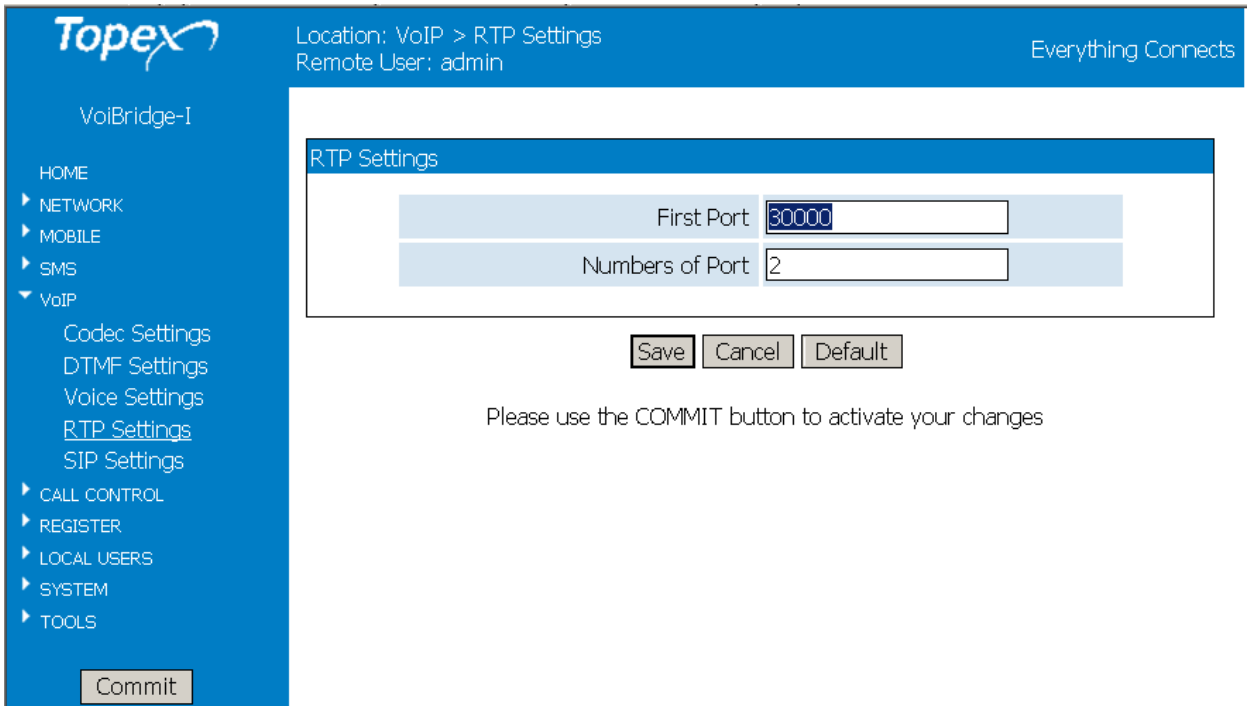
Enables or disables the "Voice Activity Detection", by default this feature is disabled.



Typical voice conversations can contain up to 35 to 50 percent silence.
On VoIP networks, both conversation and silence is packetized. If VAD is enabled, the equipment sends out RTP packets only when voice is detected, thus decreasing bandwidth by 30-50 %. This way the VoiBridge Litewill send voice packets only when it has voice input. When it detects silence on RTP, it will send a “silence packet” to the other side which uses less bandwidth and allows to be interpreted for generating comfort noise. This “Comfort noise” is locally generated during the time than no voice RTP packets are sent. Without the comfort noise, the customer will hear only silence on the line, so he may believe that the connection is broken!
VAD may be used advantageously together with echo cancellation - by preventing echo from traveling across a network, the capacity achieved through silence suppression is increased.

6.6.4. RTP Settings

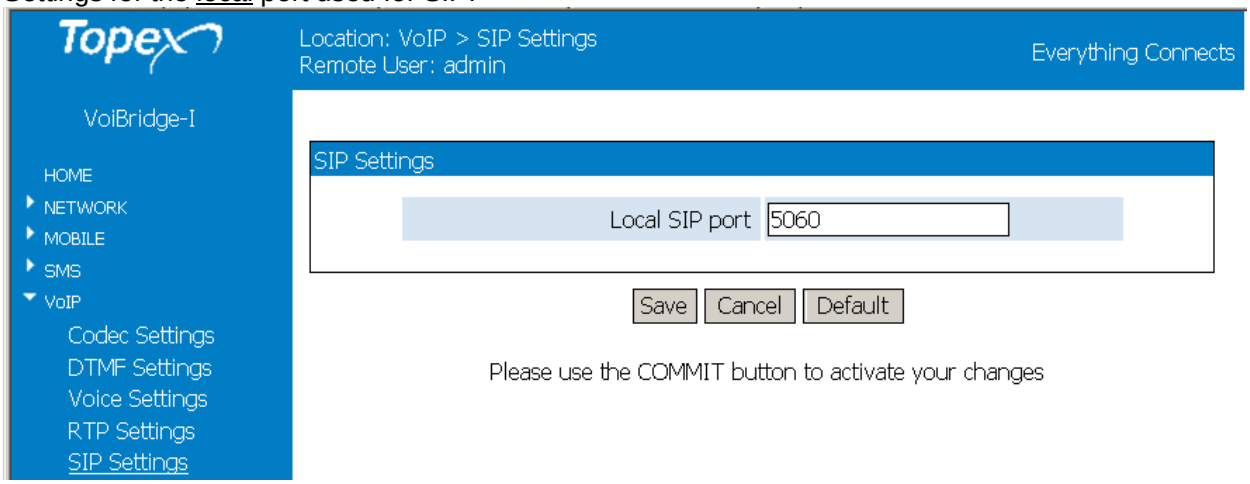
Settings for the ports used for RTP:



You can set up the number of the fist port used for RTP, and the number of ports.
With the settings shown above, ports 30.000 and 30.001 will be used for VoIP traffic.

6.6.5. SIP Settings

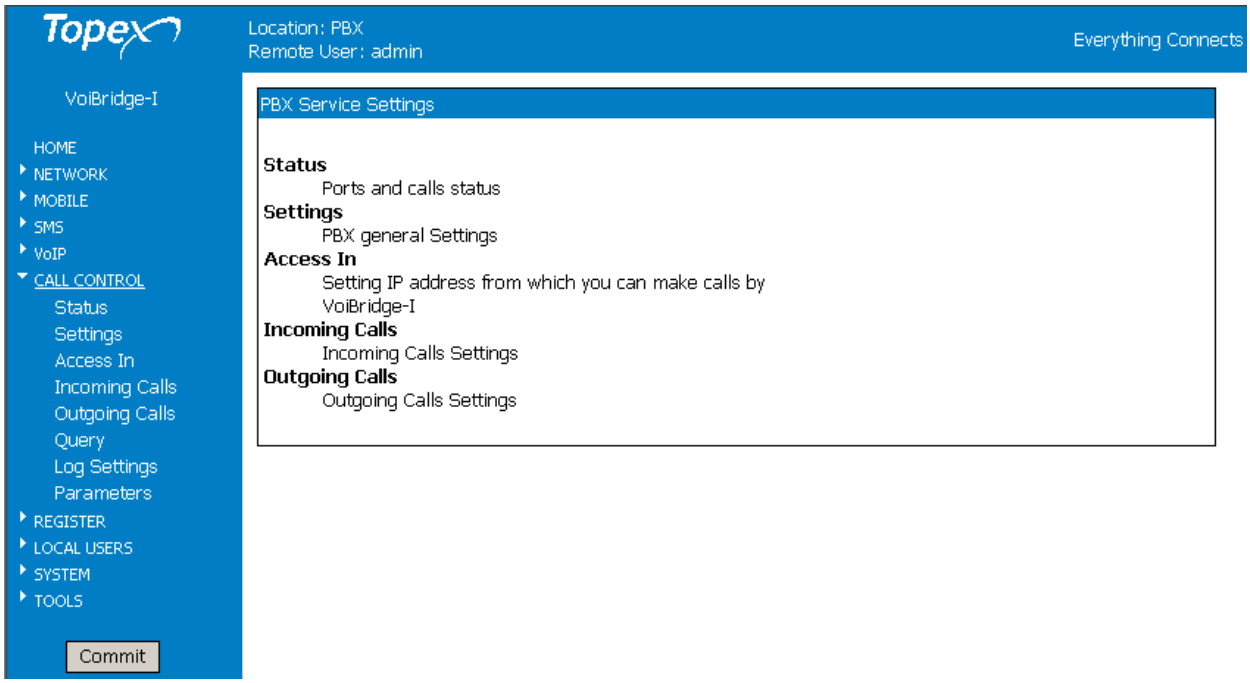
Settings for the local port used for SIP.



By default, the “Local SIP Port” is the usual one, number 5060, but you can change this value, according to the specifications of your VoIP system. Of course, this local port number must correspond to the port used for SIP by the correspondent (remote) equipment connected to VoIBridgeI4 IP, which is the SIP phone exchange.

6.7 CALL CONTROL

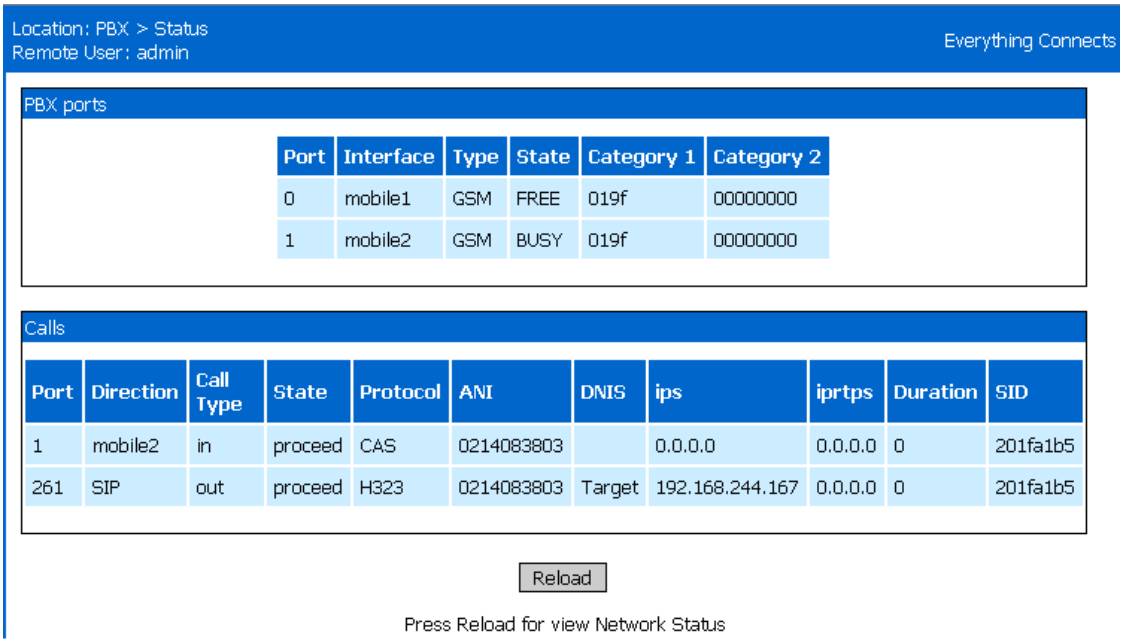
Establishes the settings related to the “telephone exchange” features of the VoiBridge I4-GSM , which manages all the calls.



This application runs on the VoiBridge Liteequipment and performs all the tasks of call-control (management, access, routing, logs and so on).

6.7.1. Status

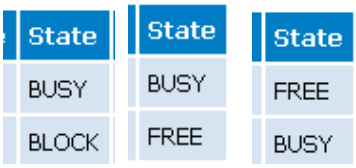
Displays the current state of the ports of the embedded “phone exchange” as well as the states of the calls that are routed through VoIBridgeI4 IP:


Location: PBX > Status
Remote User: admin
Everything Connects
PBX ports
Port Interface Type State Category 1 Category 2
0 mobile1 GSM FREE 019f 00000000
1 mobile2 GSM BUSY 019f 00000000
Calls
Port Direction Call Type State Protocol ANI DNIS ips iprtps Duration SID
1 mobile2 in proceed CAS 0214083803 0.0.0.0 0.0.0.0 0 201fa1b5
261 SIP out proceed H323 0214083803 Target 192.168.244.167 0.0.0.0 0 201fa1b5
Reload
Press Reload for view Network Status

There are two sections, PBX **Ports** and respectively **Calls**.
In the stand-by state, both ports are “free” and no info about calls is displayed, since there are currently no conversations going through the VoiBridge I4-GSM .

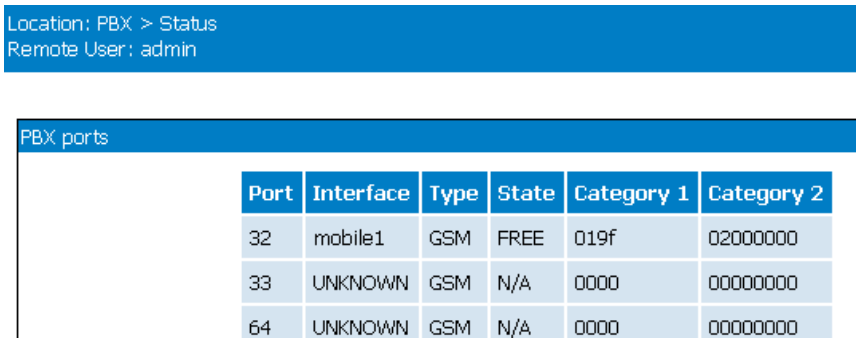
PBX ports

Shows the state of the four mobile (GSM) interfaces of the equipment, from the point of view of the call control application.
They may be FREE (available), BLOCK (blocked for calls) BUSY (in a call) or N/A (not available).



Note: The display “BLOCK” means that NOW the respective Mobile interface is not available, but it may have several different reasons:

The BLOCK-ed module is not operational, perhaps it does not have a good SIM, or simply the device has been rebooted and the respective module is in the initialization or searching phase, and after a delay it may become again available. But the interfaces with state N/A are really not available, because they have been disabled form the Web interface (MOBILE>Settings):


Location: PBX > Status
Remote User: admin

PBX ports

Port	Interface	Type	State	Category 1	Category 2
32	mobile1	GSM	FREE	019f	02000000
33	UNKNOWN	GSM	N/A	0000	00000000
64	UNKNOWN	GSM	N/A	0000	00000000

Category 1	Category 2
019f	00000000
019f	02000000

Category – fields reserved for further development.

Currently, only a few bits of these “categories” are used. Thus, in category 1 the figures “019f” indicates a mobile interface, while in category 2 “000” shows a local SIM and “020” indicates a remote SIM (the respective interface works with a SIM Server).

Calls

Displays info about the calls routed through the VoiBridge I4-GSM .

Calls

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
32	mobile1	in	alerting	CAS	0214083800		0.0.0.0	0.0.0.0	0	0f7d481f
261	SIP	out	alerting	SIP	0214083800	246	192.168.244.167	0.0.0.0	0	0f7d481f

See below an example about a call that gets out via the GSM module “mobile2”:

PBX ports

Port	Interface	Type	State	Category 1	Category 2
0	mobile1	GSM	FREE	019f	00000000
1	mobile2	GSM	BUSY	019f	00000000

Calls

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
262	MYVOIP	in	connected	SIP	bogdan	0724545419	192.168.144.151	192.168.144.151	39	6c62c7f
1	mobile2	out	connected	CAS	bogdan	0724545419	0.0.0.0	0.0.0.0	39	76a0559

The example above shows a single VoIP call coming from a Soft-phone application running on computer with the IP address “192.168.144.151” in the local network and getting out of the VoiBridge Litethrough the GSM interface Mobile2. The mobile number called is 0724 …, while the SIP user who calls in “bogdan”.

Calls

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
32	mobile1	in	connected	CAS	0214083800		0.0.0.0	0.0.0.0	28	246510a9
261	SIP	out	connected	SIP	0214083800	283	192.168.244.167	192.168.244.168	28	246510a9

Ports – 32, 33, 64 and 65 are the Mobile ports, while 261, 262 are VoIP ports

Direction – the calls may belong to one of the directions MYVOIP, SIP, mobile1 …mobile4,

Type – type of the call, it may be “in” for incoming or “out” for outgoing.

Port	Direction	Call Type	State	Protocol	ANI
32	mobile1_disa	in	proceed	CAS	0214083800

State – current status of the call, “alerting”, “proceed” or “connected”

Protocol – SIP or H323 for VoIP, CAS for the mobile networks, or “Unknown”

ANI – identity of the calling party, received by the SIP user. Generally, Automatic Number Identification is a service that provides the receiver of a telephone call with the number of the calling phone.

DNIS – destination number, dialed by the SIP user. Dialed number identification service, also used for the routing of calls based upon the phone number of the destination. In this example, 283is a local extension, where the incoming call has been routed.

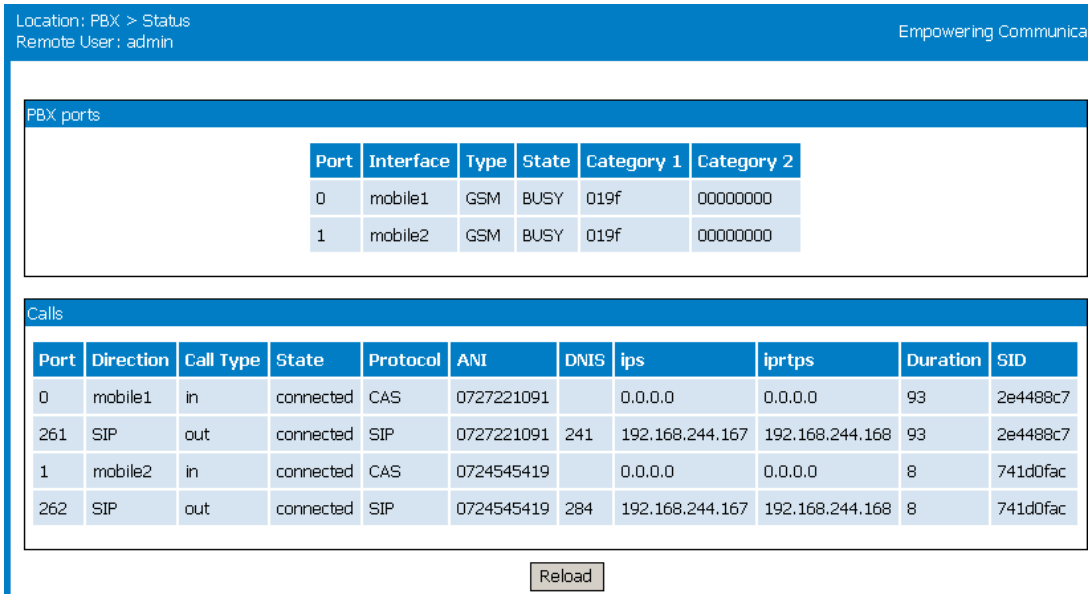
Ips – IP address used for Signaling, SIP, such as 192.168.244.167 in the above example.

Iprtps – IP address for RTP may be the same as the signaling address, or it may be two different addresses. There are examples of both cases.

Duration - total duration of the call, in seconds, starting from the moment the called party answers.

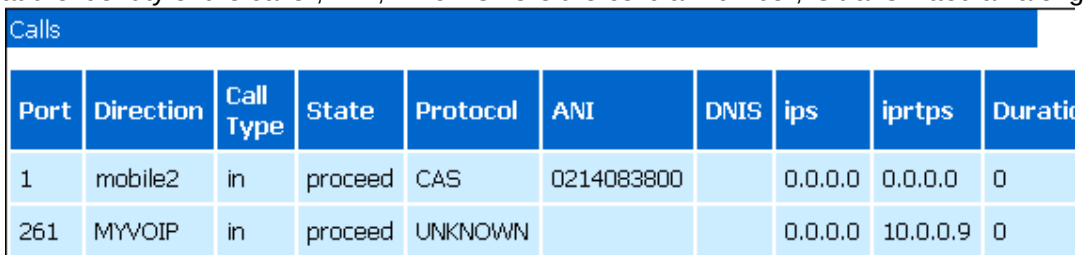
SID –Session ID, each session for every call has a unique ID

In the following PBX Status example, a call from “0727…” is getting in through the cellular interface Mobile 1 and goes out as an SIP call through VoIP port 261. Note that in this case the IP destination addresses for signaling and RTP are different! The SIP call goes to the extension 241 of the IP PBX.
Starting one a half minute later, another mobile call comes in via cellular interface Mobile 2 from the mobile number “0724” and goes out as an SIP call, via VoIP port 262, to the extension 284.
Now both mobile interfaces and both SIP ports of the VoiBridge Liteare busy.


Location: PBX > Status
Remote User: admin
Empowering Communica
PBX ports
Port Interface Type State Category 1 Category 2
0 mobile1 GSM BUSY 019f 00000000
1 mobile2 GSM BUSY 019f 00000000
Calls
Port Direction Call Type State Protocol ANI DNIS ips iprtps Duration SID
0 mobile1 in connected CAS 0727221091 0.0.0.0 0.0.0.0 93 2e4488c7
261 SIP out connected SIP 0727221091 241 192.168.244.167 192.168.244.168 93 2e4488c7
1 mobile2 in connected CAS 0724545419 0.0.0.0 0.0.0.0 8 741d0fac
262 SIP out connected SIP 0724545419 284 192.168.244.167 192.168.244.168 8 741d0fac
Reload

Next the user sees a cellular call routed with DISA function instead of “Target” number, as was done previously.
A single incoming call gets in through interface Mobile 1, from the phone number “07245…”.
It is routed as an intermediate (internal) call with protocol “unknown” on port 262 and gets out as an SIP call on port 261 to the extension that is dialed in DISA mode.

Notice that the identity of the caller, ANI, which is here the cellular number, is transmitted all along:


Calls
Port Direction Call Type State Protocol ANI DNIS ips iprtps Durati
1 mobile2 in proceed CAS 0214083800 0.0.0.0 0.0.0.0 0
261 MYVOIP in proceed UNKNOWN 0.0.0.0 10.0.0.9 0

In the next example, the call comes in through the GSM module “Mobile 2” and the protocol used by the VoIP system is H323:

PBX ports

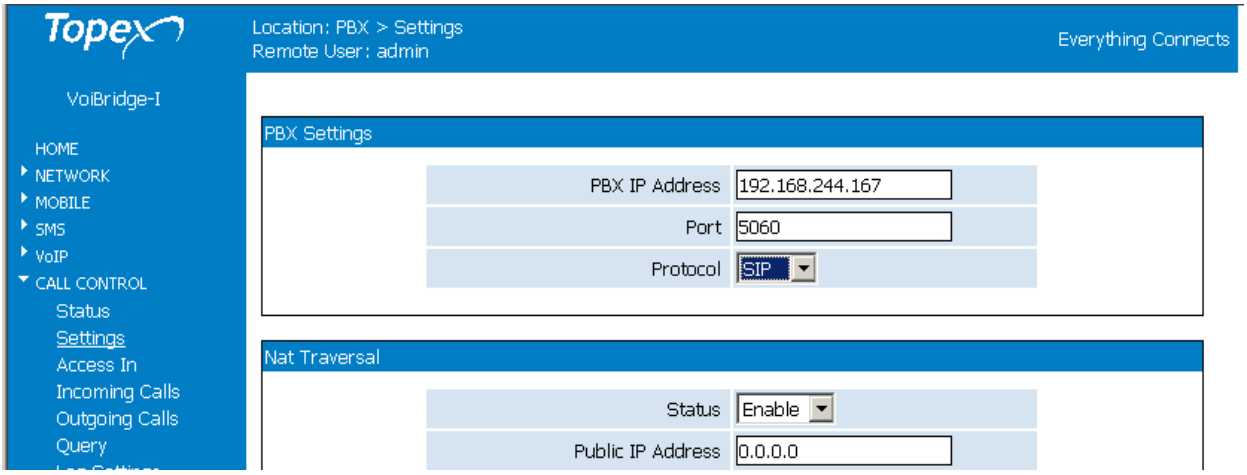
Port	Interface	Type	State	Category 1	Category 2
0	mobile1	GSM	FREE	019f	00000000
1	mobile2	GSM	BUSY	019f	00000000

Calls

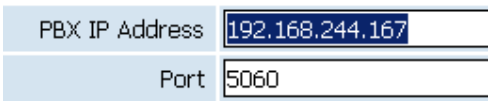
Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
1	mobile2	in	proceed	CAS	0214083803		0.0.0.0	0.0.0.0	0	201fa1b5
261	SIP	out	proceed	H323	0214083803	Target	192.168.244.167	0.0.0.0	0	201fa1b5

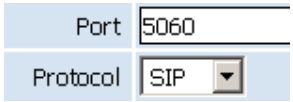
6.7.2. Settings

Here you can configure the settings for the IP phone exchange that will work with the VoIBridge I and also the settings used for NAT traversal.



Select the parameters for the IP phone exchange where the Topex VoIP-4-mobile interface is connected: **IP address**, then the port and protocol to be used.





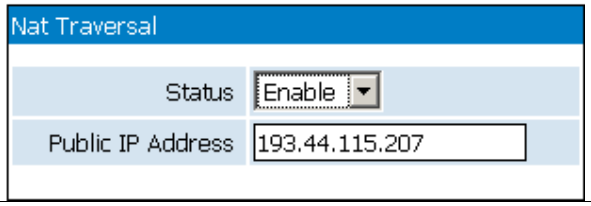
Here you set up the protocol to be used for VoIP and the corresponding port number. By default the port used for SIP protocol is the standard **5060**, but the user may change this value if the SIP PBX operates differently.

Likewise, when you select H323 protocol instead of SIP, the default port number is **1720**, but you can change this setting.

Traversal of NAT:

The usage of Network Address Translation was imposed by the limited address space of IPv4.

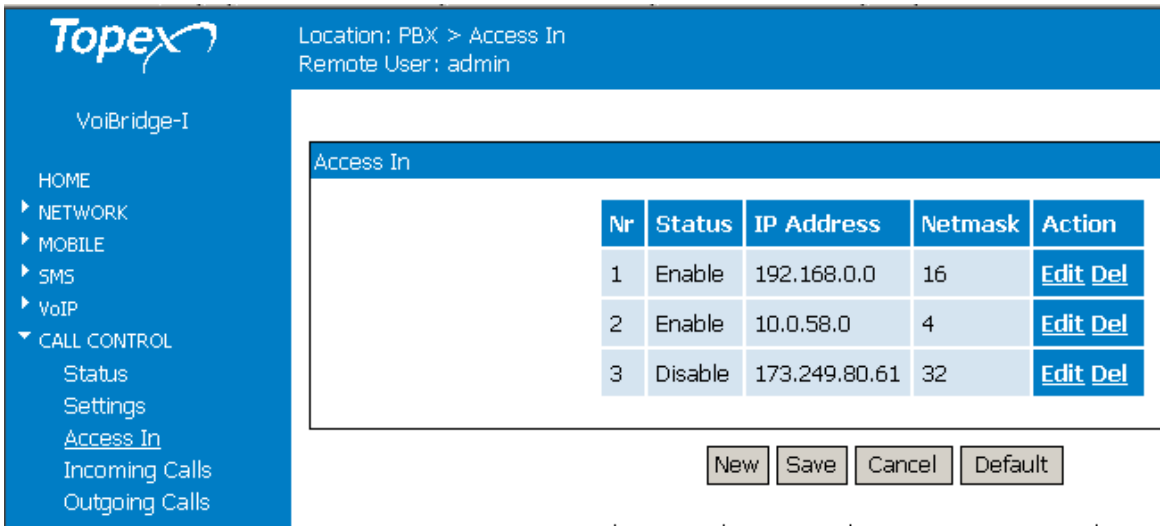
With NAT, multiple computers on a LAN could share a single public IP address for accessing the Internet. But the use of NAT breaks end-to-end connectivity, which must be restored.



The techniques for NAT traversal do precisely this, allow communication in client-to-client networking applications, especially peer-to-peer and Voice-over-IP as in the case of VoIBridgeI4. When you need to use NAT traversal, set it to Enabled and fill in the corresponding public IP address.

6.7.3. Access In

Clears access into the VoiBridge Litegateway – this setting establishes the list of IP addresses and ranges from where access is allowed.



Enter the network or host address, then for the Netmask, select it from the drop list which shows up.
Here also, you can create new records, edit and change them, and individually enable or disable each line.

Notes:

- the address of the PBX that you have entered in "**CALL CONTROL>Settings>PBX Settings**" is automatically added into the list Access In.
  So, even if you don't perform any other settings, VoiBridge Litewill still be able to talk to the respective IP PBX;

- the first line of the Access In list is set by default to the local network: 192.168.0.0, with net mask 16, meaning that any user with an address type 192.168.xxx.yyy will have access to VoIBridgeI4;

- the second line refers another local network, from a different class, with netmask 4, much wider .

- the third line refers to an external, public address, where is located a device (such as SJ Phone) that is allowed to call VoIBridgeI4 IP.
  Usually, this would be single, actual IP address, not a range of addresses, thus its corresponding netmask will be 32 , the most restrictive.

Examples:

An incorrect setting of the netmarsk to 24 lets only the final group of figures available for connection :

As consequence, the incoming call won't be able to connect, no interface is chosen, and you can see as reason for ending the call "ACL_REJECT":

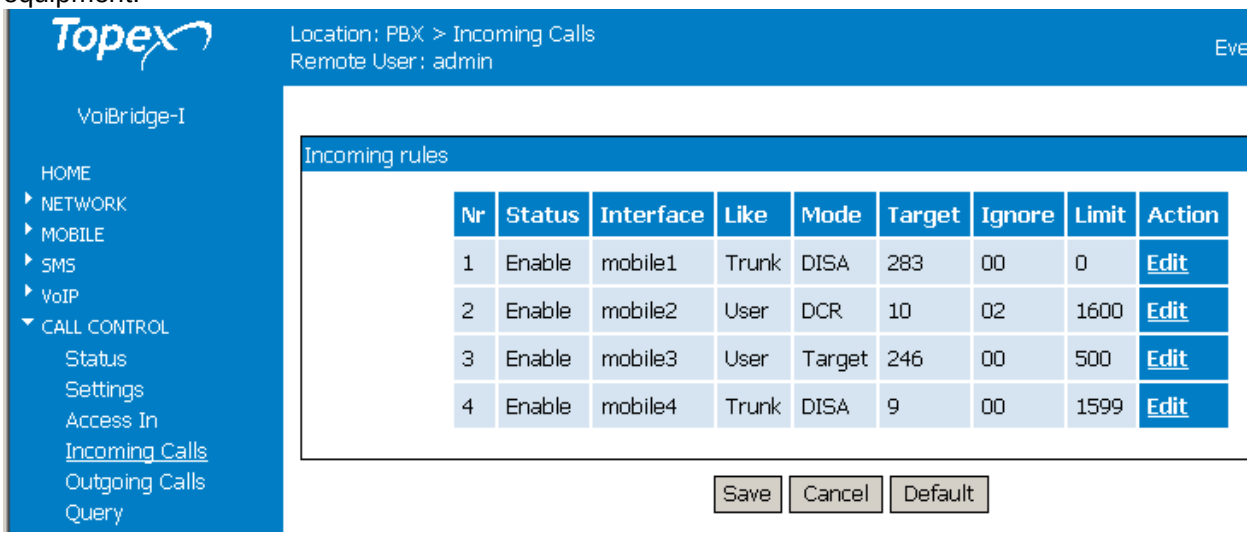
Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Signaling IP	Remote Signaling port	End cause
1	incoming		01-12-10	09:43:36	000000		0	192.168.173.12	0	ACL_REJECT

This 'ACL_REJECT' is the abbreviation for Access list reject, and it means that the source of call has not been added into your 'access in" table. When you set the correct value for the Netmask (16), the incoming call will be accepted, and a normal phone conversation may take place:

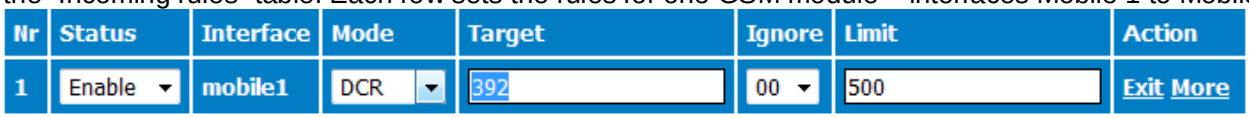
4	incoming	mobile1	01-12-10	09:56:27	000168	0214083800	0	192.168.244.167	0	AOK

6.7.4 Incoming calls

Settings for the incoming calls, that means calls which come in through the mobile interfaces of the equipment:

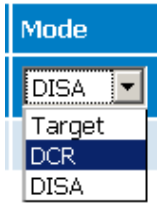


Here there are only four rows that can be edited – they cannot be deleted or more rows added to the "Incoming rules" table. Each row sets the rules for one GSM module – interfaces Mobile 1 to Mobile 4:



They define the rules for calls coming in from the mobile networks.

For each of the four mobile interfaces one can choose **Enable** to activate it, then select the type (**Like**), **Mode** of routing (action to be taken) and **Target** (destination).
First click **Edit** to start editing the specific row, then **Exit** to get out or **More** to reach additional settings, and finally **Save** the settings:



Mode – how the incoming call will be routed.
Target – directly to the target, a local extension. When you select this, you must also complete the field Target.
DCR – use Dynamic Call Routing (see explanation further on).
DISA – if you choose DISA operation, the value in the field Target doesn't matter any longer, the caller will receive a DISA tone allowing him to dial the number of the local extension he wants to reach. See below the routing of such a call, coming in through interface Mobile1 and being connected to destination by means of DISA dialing.

Example of a DISA call.

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
32	mobile1_disa	in	proceed	CAS	0214083800		0.0.0.0	0.0.0.0	0	43edc41f

The call getting in through mobile1 interface gets assigned a Direction “mobile1_disa”. It receives DISA tone, and gets on as a SIP call with the same ANI as the initial call.

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
0	mobile1	in	connected	CAS	0724545419	284	0.0.0.0	0.0.0.0	5	17cd2c71
261	MYVOIP	in	proceed	UNKNOWN			0.0.0.0	10.0.0.9	0	17cd2c71
262	SIP	out	connected	SIP	0724545419	284	192.168.244.167	192.168.244.168	5	17cd2c71

Routing an incoming call with DISA makes use of an intermediate call with “unknown” protocol, which is internal to the equipment:

6.7.5 Definition of DCR

Dynamic call routing is *the process of automatically re-routing a call based on specific criteria, instead of using a static, pre-defined routing table*.

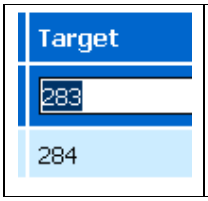
The feature Dynamic Call routing was designed primary to fix the ID issue that arises for calls made through mobile gateways; from your desk, you ring someone in the filed, but this mobile user cannot call you back! From First, the called party cannot see the real phone number (extension) of the calling party; instead he just sees the number of the SIM card for the GSM module used. If the call is not accepted, or the called party was busy, when the called party tries to ring back to the number that shows up in „missed calls”, he will reach only the respective GSM module of the VoiBridge Litegateway and he cannot be connected to the PBX or to the human operator. He does not have information about the **real number** of the calling party, he does not know from what local extension he was called.

To overcome this problem, outgoing calls made through the mobile modules of the VoIBridgeI4 are stored in the Dynamic CLIP table as they are made. When the destination rings back, he will be connected automatically to the source of the call. See below an example:

Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Signaling IP	Remote
6	outgoing	mobile3	26-11-10	14:00:44	000005	246	0724545419	192.168.244.167	5060
7	incoming	CALLBT	26-11-10	14:01:05	000006	0724545419	0	192.168.244.167	0

At 14:00:44, the extension 246 rings, via interface mobile3, the phone number 072xxxxxx – row 6 is an outgoing call.
The, at 14:01:55, the user in the field, with phone number 072xxxxxx calls back.
Row 7 shows an incoming call. His call is automatically connected to the extension 246, who was the source of the first call. But in the field DNIS you see only a zero, not the value “246”. Why?
Because it is a dynamic list! The value of the destination is stored only **temporary**, then it is deleted or replaced with a new value. This way, when the user in the field calls back the first time, he will be connected to the source extension, but when he calls back a second time or later, this value has been erased, so now he will be connected to the extension that was specified in the filed “Target”!
Also, when the mobile user out in the field has not yet been called by anybody from VoiBridge-I, the DCR feature has not value to operate upon, so when he rings, the remote mobile user will be connected to the extension you have set in the field “Target”.

6.7.6 Target, Ignore, Limit



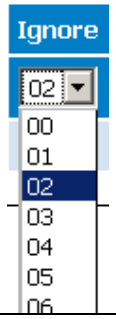
Target – when you don't use DISA or DCR, but select the default Target mode, you must complete the destination of the call.

Type here the number of the local extension where the calls will be routed which are coming in through the respective Mobile interface (such as 283, 284 etc in the examples used).

Additional settings for Incoming calls

Ignore
You may set VoIBridgeI4 to ignore any number of digits out of the numbering (Caller ID) coming in through each mobile module.
From the drop list, select the number of digits to be ignored, from "00" (no digits are ignored) up to "15" .

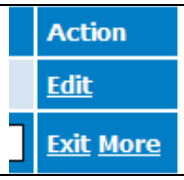
The ignoring option is used for different methods of routing the calls using additional (local use only) prefixes.

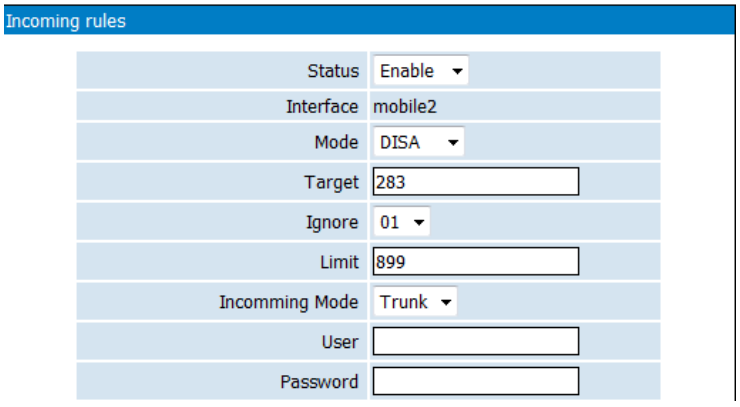


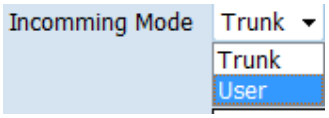
Limit
You may impose a time limit upon individual calls made over each mobile module.
Setting "limit" to 1599 for example means that no call can have a duration of 1600 seconds – the calls will be disconnected when they reach 1599 seconds.

6.7.7 More

When you are editing one of the "Incoming call" rows, the last field, Action, provides you with the options Exist, to get out, or More, to access further parameters.
Click the link "More" to go to the next window for incoming settings, as shown below:





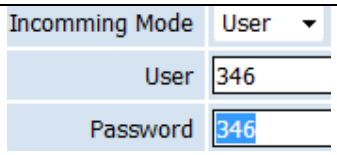


Incoming Mode – how the call will be treated, either like a **Trunk** or as a **SIP user**. When you select **User** instead of the default **trunk**, for incoming calls from the GSM network the SIP call towards the IP PBX will be achieved as a declared SIP User.

This way you can register the four mobile interfaces as extensions of the IP PBX, so *incoming mobile calls will be treated as extensions of the VoIP phone exchange*.

For this , you must complete also the next two fields, the **User name** and the corresponding **Password** for the SIP Users:
Now, in the PBX, you can receive incoming calls as a user only.

Applications include:



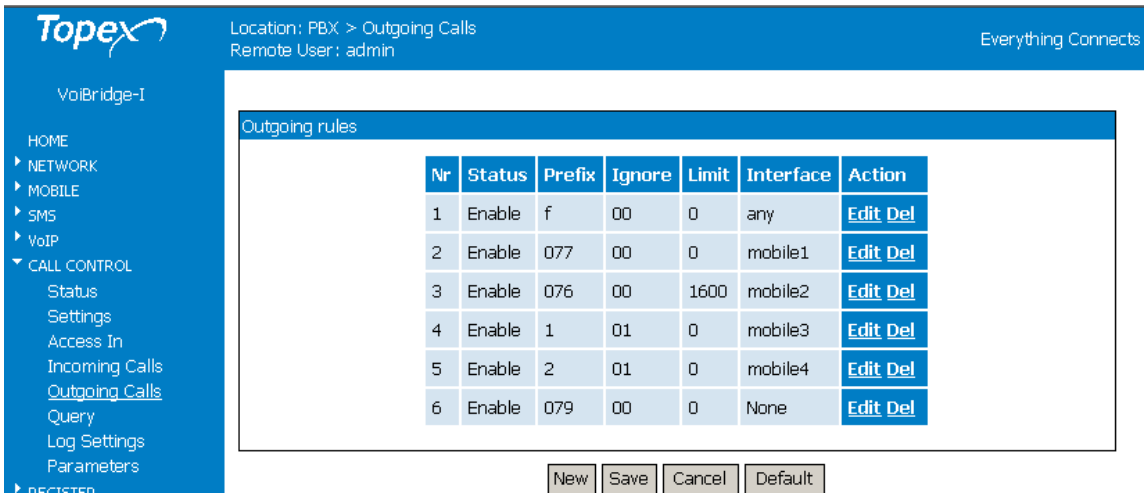
- you have a subscription to a VoIP provider, where you must be User. With this feature, you can register incoming mobile calls as SIP Users to the respective provider!
- Since the mobile number has assigned a local SIP User, it will benefit from all of the advanced services provided by the IP-PBX (services that were intended for the local SIP Users).

6.7.8 How Incoming calls are treated

Every incoming call is defined by a Caller ID.
Using this ID, VoiBridge I first looks for routing rules in **REGISTER>Register Mobiles** and respectively **LOCAL USERS>Mobile users**.
When the phone number of the incoming call is not found in these two tables, the rules established here, in “Incoming calls” will be applied!
The same applies for the case when the incoming call does not show Caller ID (it has CLIR activated) - the rules established in “**CALL CONTROL>Incoming calls**” will be applied!

6.7.9 Outgoing calls

Establishes the rules for outgoing calls, which are calls coming from SIP or H323 and directed to mobile networks:



One can define a table with several rules for calls coming in from VoIP and going out through the mobile interfaces.
The program analyses the numbering (the prefix) of the phone number called and routes the calls accordingly through one of the four mobile interfaces.

If one of the mobile ports is disabled, the respective GSM module will NOT be used for outgoing calls.

Use the **New** button to create a new rule, **Edit** to fill the parameters for it, **Exit** to get out of the respective row, and **Save** to save the rules created.

The button **Del** is to erase an existing rule from the table.

Each rule may be individually **Enabled** or **Disabled**. This way, you can set up and save several outgoing rules , for different situations, but enable only some of them, according to the actual situation.

Examples:

Nr	Status	Prefix	Ignore	Limit	Interface	Action
1	Enable	f	00	0	any	Edit Del
2	Enable	077	00	0	mobile1	Edit Del
3	Enable	076	00	1600	mobile2	Edit Del
4	Enable	1	01	0	mobile3	Edit Del
5	Enable	2	01	0	mobile4	Edit Del
6	Enable	079	00	0	None	Edit Del

Rules 2 and 3 demonstrate prefix routing. When a call has the prefix 077, it will go out through the interface Mobile1, if it has the prefix 076, it will go out through the interface Mobile2, and so on.

Rule number 6 states that outgoing calls with the prefix 079 will be routed via interface "**none**", meaning they will be rejected.

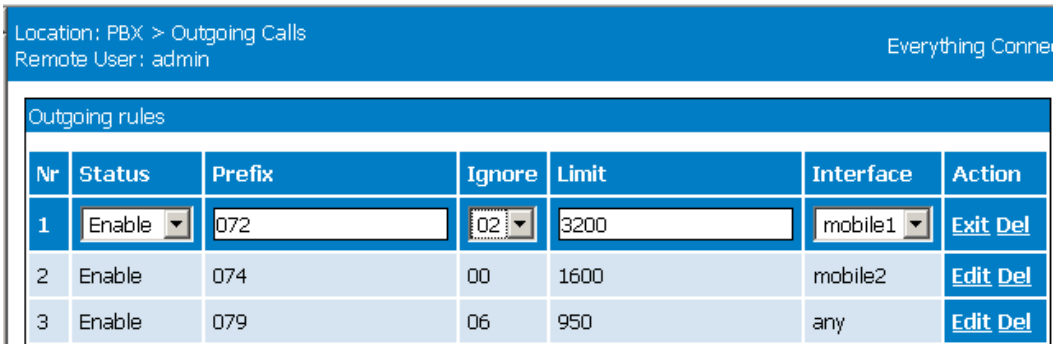
The prefix "0ff" means zero followed by two digits (no matter which ones), one must use this format for compatibility – all the prefixes in the table must have the same number of digits.

The value "**any**" in the field "Interface" means that the respective call can be routed via any of the four modules.

Rules 4 and 5 are examples of another kind of call routing – forced assignment.

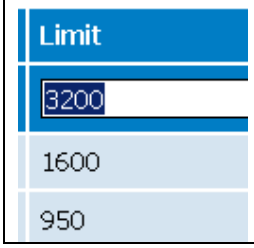
Suppose you need to output some calls, no matter their destination numbers, only through module 3, which connects to a certain mobile carrier. Then, the call must dial a "1" at the beginning of the destination phone number. This first digit will be ignored, but VoiBridge will know that it must route all calls starting with an one via module 3. Likewise, to get a call out via Module 4, you should dial a "2" before the real telephone number. The digit two will be stripped out of the destination number, but VoiBridge will know that it must route the respective calls through Module 4, no matter their prefix.

Ignore and Limit



The field Ignore and respectively Limit have exactly the same significance as for the incoming calls

You can set the device to ignore the first 00 … 15 digits out of the phone number.
This is to be used together with special rules for routing of the outgoing calls – for instance, the local subscribers must dial a '6' to get access to the public telephony networks, and the pbx application must be told to ignore the first digit of the telephone number.



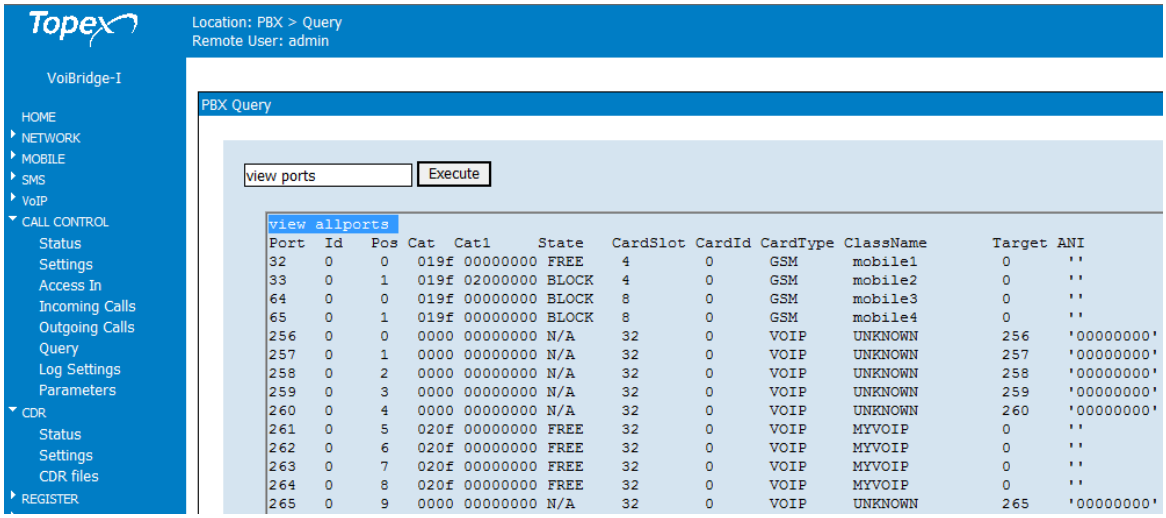
You can establish a time limit (in seconds) for the duration of outgoing calls, such as 3200 seconds in this example.
Such limitation is especially useful when, following a phone conversation, the local subscriber does not hung up, and the call could remain connected, unnecessary generating a very high phone bill for the respective SIM.

6.7.10. PBX Query

Allows sending of text commands to the phone exchange application which runs on the VoiBridge Lite equipment.

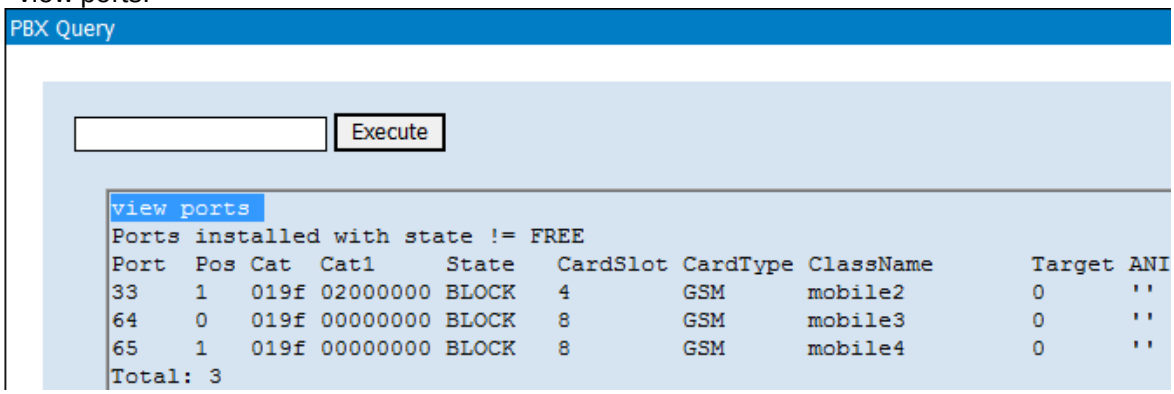
When you press Execute, the PBX application executes the command and displays the answer below, as shown in these examples:

- view all ports:

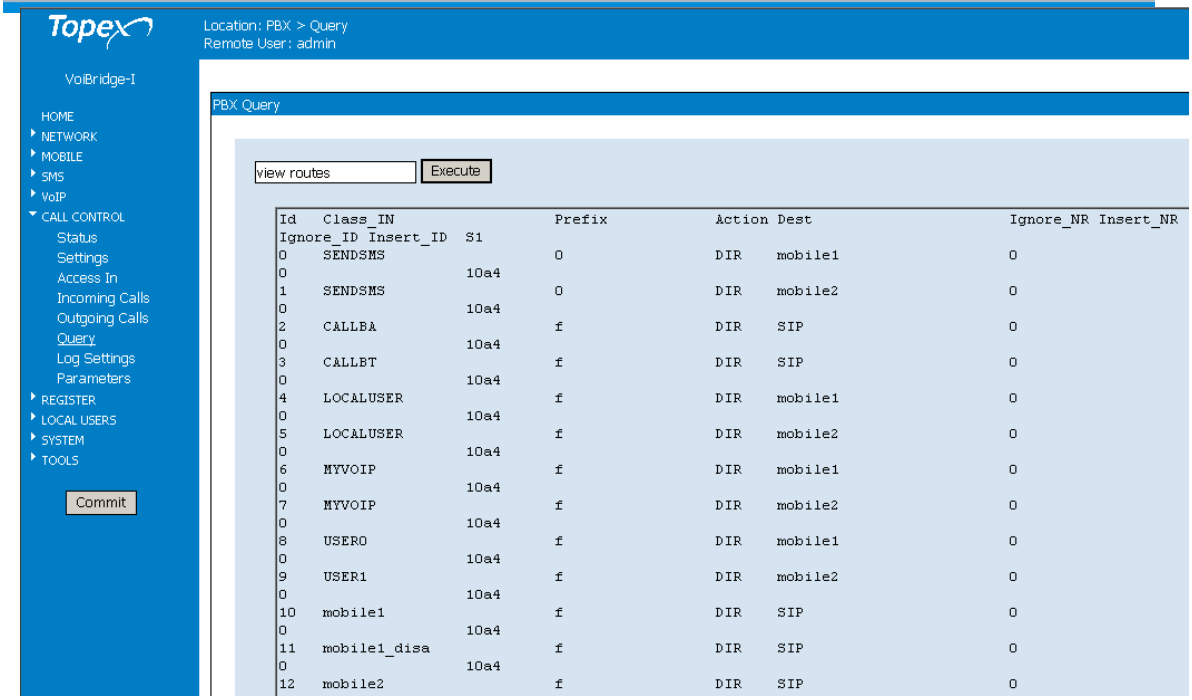

Topex
Location: PBX > Query
Remote User: admin
VoiBridge-I
HOME
NETWORK
MOBILE
SMS
VoIP
CALL CONTROL
Status
Settings
Access In
Incoming Calls
Outgoing Calls
Query
Log Settings
Parameters
CDR
Status
Settings
CDR files
REGISTER
PBX Query
view ports
Execute
view allports
Port Id Pos Cat Cat1 State CardSlot CardId CardType ClassName Target ANI
32 0 0 019f 00000000 FREE 4 0 GSM mobile1 0 ''
33 0 1 019f 02000000 BLOCK 4 0 GSM mobile2 0 ''
64 0 0 019f 00000000 BLOCK 8 0 GSM mobile3 0 ''
65 0 1 019f 00000000 BLOCK 8 0 GSM mobile4 0 ''
256 0 0 0000 00000000 N/A 32 0 VOIP UNKNOWN 256 '00000000'
257 0 1 0000 00000000 N/A 32 0 VOIP UNKNOWN 257 '00000000'
258 0 2 0000 00000000 N/A 32 0 VOIP UNKNOWN 258 '00000000'
259 0 3 0000 00000000 N/A 32 0 VOIP UNKNOWN 259 '00000000'
260 0 4 0000 00000000 N/A 32 0 VOIP UNKNOWN 260 '00000000'
261 0 5 020f 00000000 FREE 32 0 VOIP MYVOIP 0 ''
262 0 6 020f 00000000 FREE 32 0 VOIP MYVOIP 0 ''
263 0 7 020f 00000000 FREE 32 0 VOIP MYVOIP 0 ''
264 0 8 020f 00000000 FREE 32 0 VOIP MYVOIP 0 ''
265 0 9 0000 00000000 N/A 32 0 VOIP UNKNOWN 265 '00000000'

Or:

- view ports:


PBX Query
Execute
view ports
Ports installed with state != FREE
Port Pos Cat Cat1 State CardSlot CardType ClassName Target ANI
33 1 019f 02000000 BLOCK 4 GSM mobile2 0 ''
64 0 019f 00000000 BLOCK 8 GSM mobile3 0 ''
65 1 019f 00000000 BLOCK 8 GSM mobile4 0 ''
Total: 3

Or:



Id	Class_IN	Prefix	Action	Dest	Ignore_NR	Insert_NR	Ignore_ID	Insert_ID	S1
0	SENDSMS	0	DIR	mobile1	0		0		10a4
1	SENDSMS	0	DIR	mobile2	0		0		10a4
2	CALLBA	f	DIR	SIP	0		0		10a4
3	CALLBT	f	DIR	SIP	0		0		10a4
4	LOCALUSER	f	DIR	mobile1	0		0		10a4
5	LOCALUSER	f	DIR	mobile2	0		0		10a4
6	MYVOIP	f	DIR	mobile1	0		0		10a4
7	MYVOIP	f	DIR	mobile2	0		0		10a4
8	USER0	f	DIR	mobile1	0		0		10a4
9	USER1	f	DIR	mobile2	0		0		10a4
10	mobile1	f	DIR	SIP	0		0		10a4
11	mobile1_disa	f	DIR	SIP	0		0		10a4
12	mobile2	f	DIR	SIP	0				

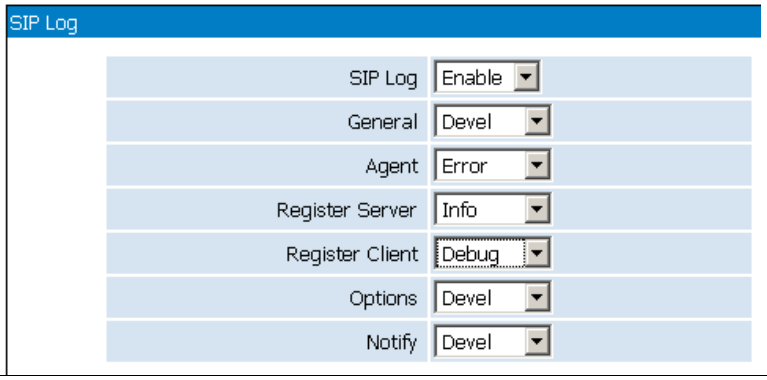
The command “help” shows you all available commands:

```
COMMAND                                          DESCRIPTION
accessin                                         //
accessout                                        //
add_to_credit [clientid] [add_credit]            // increment/decrement credit of sp
prepaid client id
all queues                                       //
ani users                                        // show ANI users loaded in memory
billing fields number                            //
billing price [billing price id]                 // show all details for specified p
billing profile [profile id]                     // show specified profile id
billing profiles                                 // show all billing profiles
ccsdown                                          //
ccsup                                            //
connect2 [arg1 arg2]                             // arg1, arg2 is hexa format of cha
(flow<<5)
count all online users                           // include also forked online users
count billing prices                             //
count offline users                              //
count online users                               //
count prepaid users                              //
count sip users                                  //
class translations [class id]                    // show tanslations for specified c
classes                                          // show sofswitch classes
clear dialog states                              // clear all dialog states for spec
username
db_cfg_idx                                       //
debug on                                         //
debug off                                        //
dialog states                                    // show call state for each dialog
fdwatch connections                              // show all fdwacth connections (te
etc.)
forking group [group number]                     // show sip users from specified fo
fw subscriptions                                 // show all event subscriptions for
```

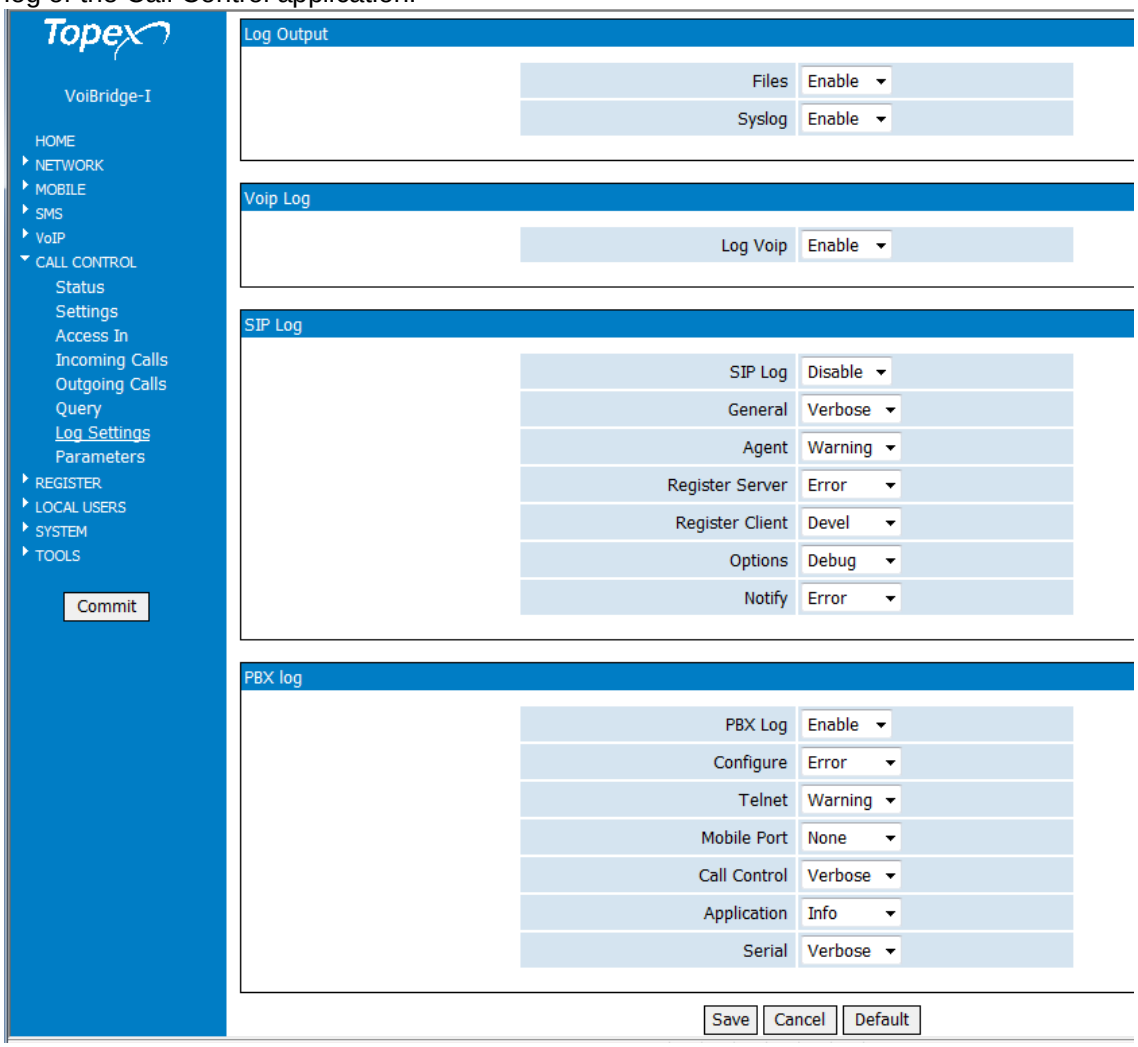
6.7.10 Log Settings

Here one can set up for each section of the log how much information will be stored.

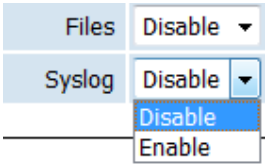
Currently, the sections available for the log are:
Log Output,
Voice over IP (a single item),
SIP
and respectively **PBX** (call control) with many selectable items.



Each section has several items, for which you can choose the degree of details that will be stored in the log of the Call Control application.



Log Output (by default both options are disabled)



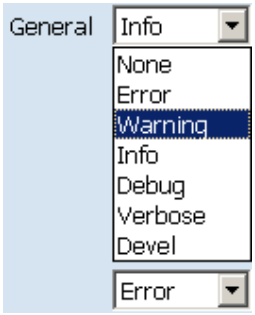
Files –when you enable this, the logging information is also sent to output files in the Out directory of the files stem. This can be done only on VoiBridge Liteequipments that are fitted with additional non-volatile storage (internal USB stick or external USB storage devices).
Syslog – when you enable this, the logging information is sent to the Syslog, where you can see and save it.

When Files is enabled, the log files created will be available for analysis in the "out" directory of the filesystem, where they are permanently stored:

```
admin@192.168.173.2's password:
/tmp $ cd ..
/ $ ls -a
.           dev         lost+found  out         sbin        usr
..          etc         mnt         proc        sda1        var
bin         lib         opt         root        tmp         vinetic
/ $ cd out
/out $ ls -a
.           ..          capture     lost+found  topvin.log
/out $ ls -a
```

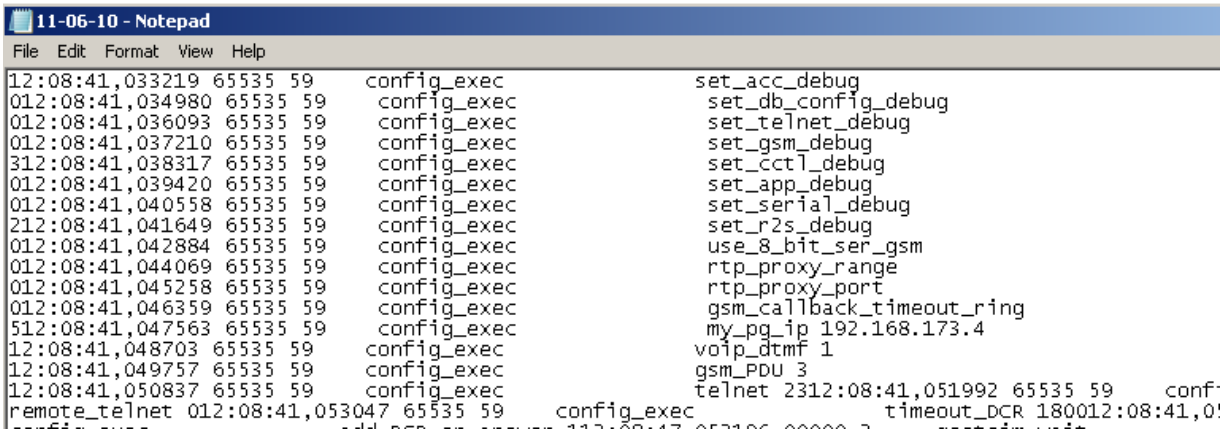
Log settings
In each section there are one or several items, and for each of these items you may choose the level of details of the log form the drop list that shows up: None, Error, Info, Warning, Debug, Devel, Verbose and so on.

Some items have only on/off setting – you may only enable or disable logging, but fir other you can choose exactly the level of details recorded into the log of the VoiBridge Liteequipment.

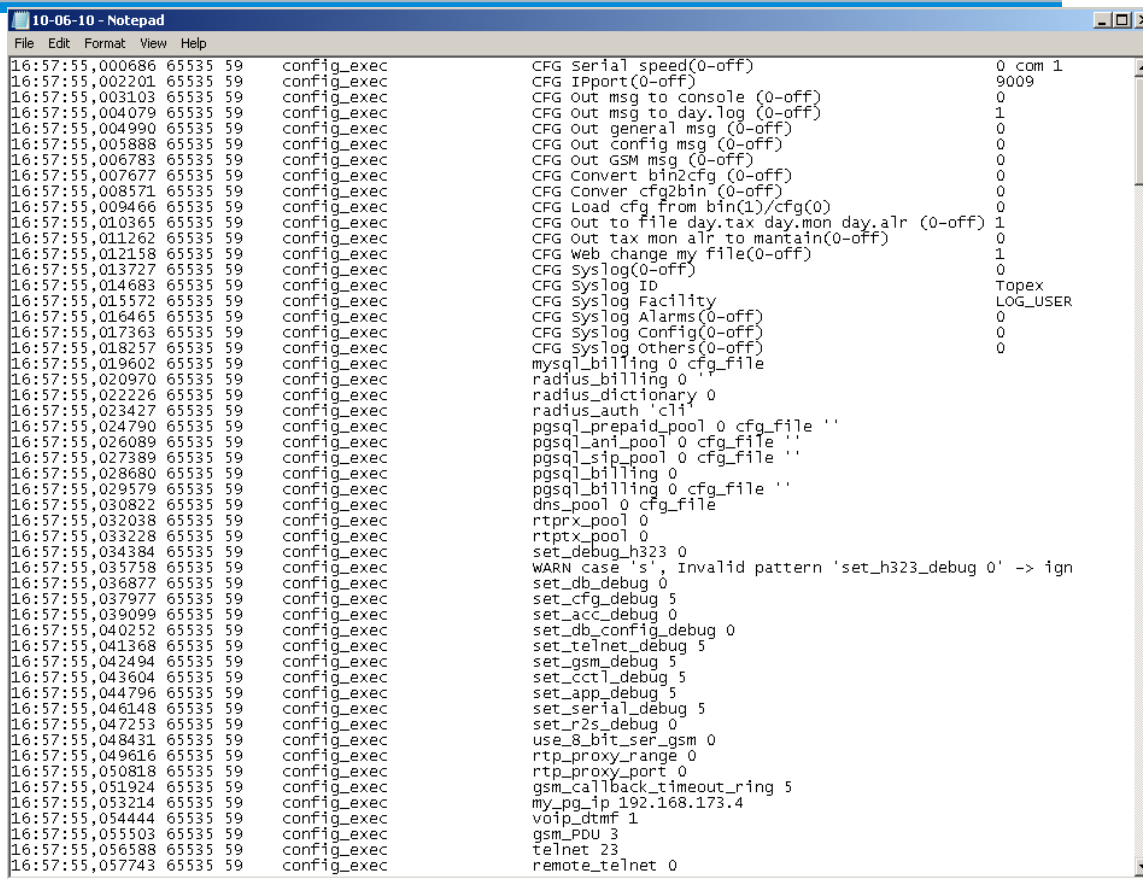


"None" or "Disable" means no log at all is created for the respective element, "Error" is the minimal level (only errors will be logged), while "Devel" is the maximum details setting – everything is logged, for the usage of developers.

These settings generate correspondingly more or less detailed log files, resulting in a minimal system log:

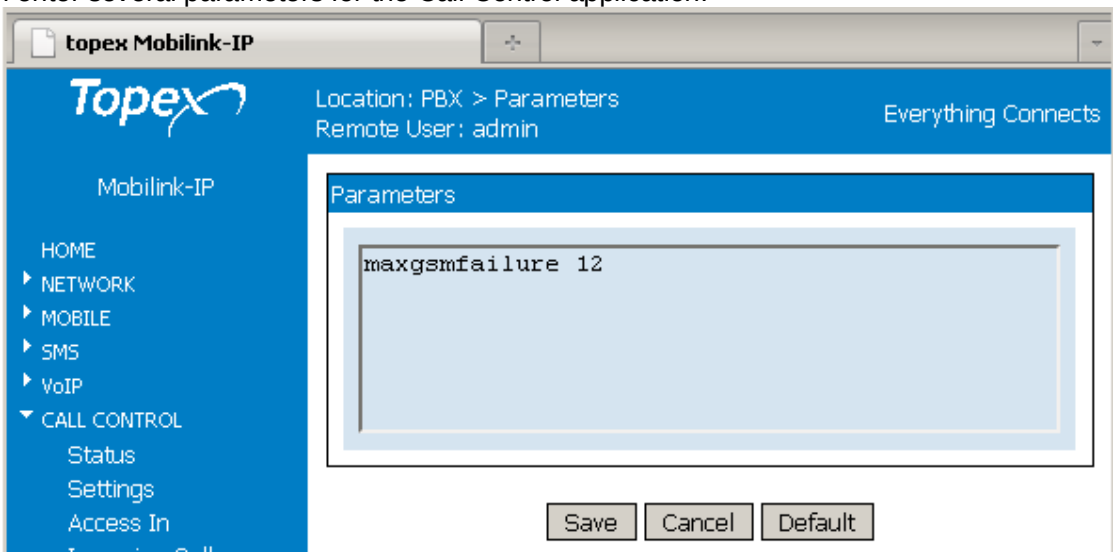

11-06-10 - Notepad
File Edit Format View Help
12:08:41,033219 65535 59 config_exec set_acc_debug
012:08:41,034980 65535 59 config_exec set_db_config_debug
012:08:41,036093 65535 59 config_exec set_telnet_debug
012:08:41,037210 65535 59 config_exec set_gsm_debug
312:08:41,038317 65535 59 config_exec set_cctl_debug
012:08:41,039420 65535 59 config_exec set_app_debug
012:08:41,040558 65535 59 config_exec set_serial_debug
212:08:41,041649 65535 59 config_exec set_r2s_debug
012:08:41,042884 65535 59 config_exec use_8_bit_ser_gsm
012:08:41,044069 65535 59 config_exec rtp_proxy_range
012:08:41,045258 65535 59 config_exec rtp_proxy_port
012:08:41,046359 65535 59 config_exec gsm_callback_timeout_ring
512:08:41,047563 65535 59 config_exec my_pg_ip 192.168.173.4
12:08:41,048703 65535 59 config_exec voip_dtmf 1
12:08:41,049757 65535 59 config_exec gsm_PDU 3
12:08:41,050837 65535 59 config_exec telnet 2312:08:41,051992 65535 59
remote_telnet 012:08:41,053047 65535 59 config_exec timeout_DCR 180012:08:41,0

or in a the very detailed one, as shown next:


10-06-10 - Notepad
File Edit Format View Help
16:57:55,000686 65535 59 config_exec CFG Serial speed(0-off) 0 com 1
16:57:55,002201 65535 59 config_exec CFG IPport(0-off) 9009
16:57:55,003103 65535 59 config_exec CFG Out msg to console (0-off) 0
16:57:55,004079 65535 59 config_exec CFG Out msg to day.log (0-off) 1
16:57:55,004990 65535 59 config_exec CFG Out general msg (0-off) 0
16:57:55,005888 65535 59 config_exec CFG Out config msg (0-off) 0
16:57:55,006783 65535 59 config_exec CFG Out GSM msg (0-off) 0
16:57:55,007677 65535 59 config_exec CFG Convert bin2cfg (0-off) 0
16:57:55,008571 65535 59 config_exec CFG Conver cfg2bin (0-off) 0
16:57:55,009466 65535 59 config_exec CFG Load cfg from bin(1)/cfg(0) 0
16:57:55,010365 65535 59 config_exec CFG Out to file day.tax day.mon day.alr (0-off) 1
16:57:55,011262 65535 59 config_exec CFG Out tax mon alr to mantain(0-off) 0
16:57:55,012158 65535 59 config_exec CFG Web change my file(0-off) 1
16:57:55,013727 65535 59 config_exec CFG Syslog(0-off) 0
16:57:55,014683 65535 59 config_exec CFG Syslog ID Topex
16:57:55,015572 65535 59 config_exec CFG Syslog Facility LOG_USER
16:57:55,016465 65535 59 config_exec CFG Syslog Alarms(0-off) 0
16:57:55,017363 65535 59 config_exec CFG Syslog Config(0-off) 0
16:57:55,018257 65535 59 config_exec CFG Syslog Others(0-off) 0
16:57:55,019602 65535 59 config_exec mysql_billing 0 cfg_file
16:57:55,020970 65535 59 config_exec radius_billing 0 ''
16:57:55,022226 65535 59 config_exec radius_dictionary 0
16:57:55,023427 65535 59 config_exec radius_auth 'cli'
16:57:55,024790 65535 59 config_exec pgsql_prepaid_pool 0 cfg_file ''
16:57:55,026089 65535 59 config_exec pgsql_ani_pool 0 cfg_file ''
16:57:55,027389 65535 59 config_exec pgsql_sip_pool 0 cfg_file ''
16:57:55,028680 65535 59 config_exec pgsql_billing 0
16:57:55,029579 65535 59 config_exec pgsql_billing 0 cfg_file ''
16:57:55,030822 65535 59 config_exec dns_pool 0 cfg_file
16:57:55,032038 65535 59 config_exec rtprx_pool 0
16:57:55,033228 65535 59 config_exec rtptx_pool 0
16:57:55,034384 65535 59 config_exec set_debug_h323 0
16:57:55,035758 65535 59 config_exec WARN case 's', Invalid pattern 'set_h323_debug 0' -> ign
16:57:55,036877 65535 59 config_exec set_db_debug 0
16:57:55,037977 65535 59 config_exec set_cfg_debug 5
16:57:55,039099 65535 59 config_exec set_acc_debug 0
16:57:55,040252 65535 59 config_exec set_db_config_debug 0
16:57:55,041368 65535 59 config_exec set_telnet_debug 5
16:57:55,042494 65535 59 config_exec set_gsm_debug 5
16:57:55,043604 65535 59 config_exec set_cctl_debug 5
16:57:55,044796 65535 59 config_exec set_app_debug 5
16:57:55,046148 65535 59 config_exec set_serial_debug 5
16:57:55,047253 65535 59 config_exec set_r2s_debug 0
16:57:55,048431 65535 59 config_exec use_8_bit_ser_gsm 0
16:57:55,049616 65535 59 config_exec rtp_proxy_range 0
16:57:55,050818 65535 59 config_exec rtp_proxy_port 0
16:57:55,051924 65535 59 config_exec gsm_callback_timeout_ring 5
16:57:55,053214 65535 59 config_exec my_pg_ip 192.168.173.4
16:57:55,054444 65535 59 config_exec voip_dtmf 1
16:57:55,055503 65535 59 config_exec gsm_PDU 3
16:57:55,056588 65535 59 config_exec telnet 23
16:57:55,057743 65535 59 config_exec remote_telnet 0

6.7.11 Parameters

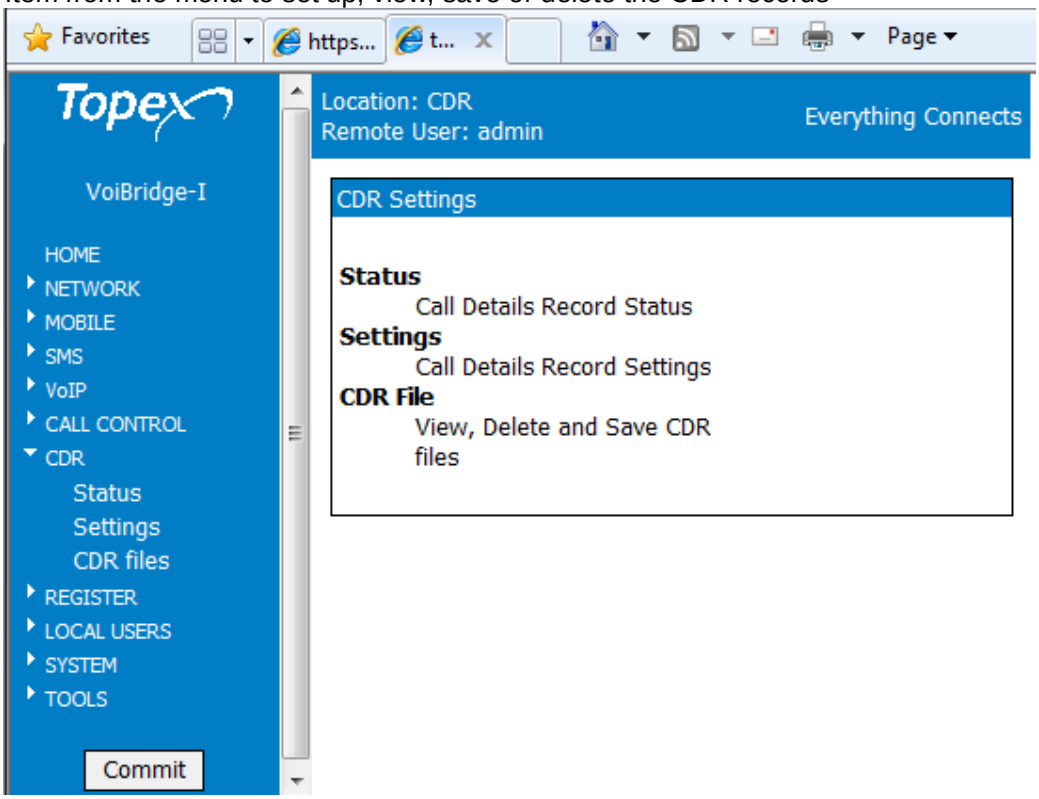
You can enter several parameters for the Call Control application.



In the example above, the maximum number of failures for registration of SIP users has been set to 12.

6.8 CDR

Select this item from the menu to set up, view, save or delete the CDR records

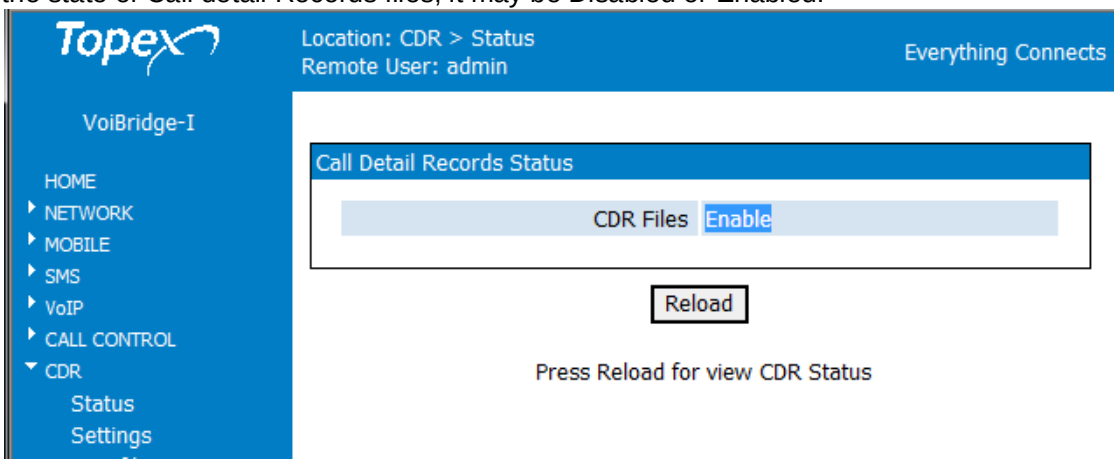


The corresponding sub-pages are CDR Status, CDR settings and respectively “Call Detail Record” File, to View, Delete or save the files holding CDR information.

The CDR feature is intended mainly for the billing of the calls, but it may also be used for debugging.

6.8.1CDR Status

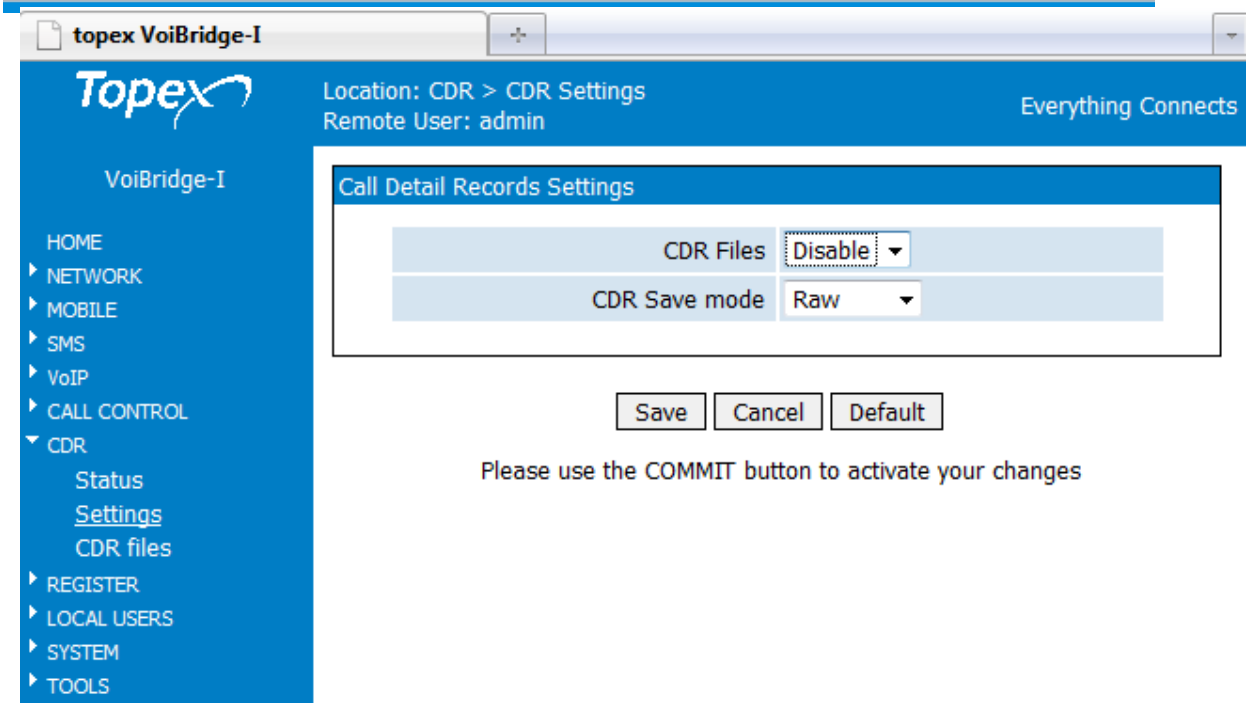
Shows the state of Call detail Records files, it may be Disabled or Enabled:

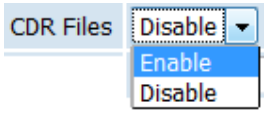


In this example, the feature is enabled.

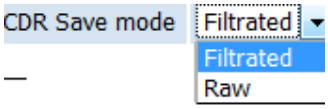
6.8.2Call Detail Records Settings

Settings for CDR include Enable / Disable and filtering:



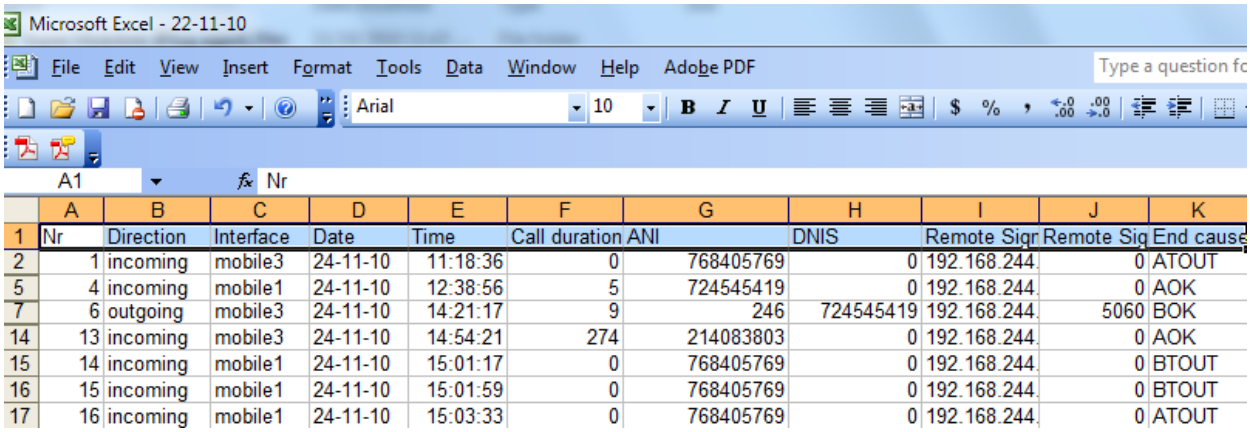


Enables the storage of CDR files.
By default, it is set to **Disabled** – the CDR files are not saved!



The mode of saving the CDR files – **RAW** (full content, not formatted) or **Filtered** (formatted and filtered). Filtrated means that only the most important information is stored /displayed, and the head of the table is a line with the titles (meaning) of the columns (direction, interface, time, duration, ANI, and so on).

Filtered:

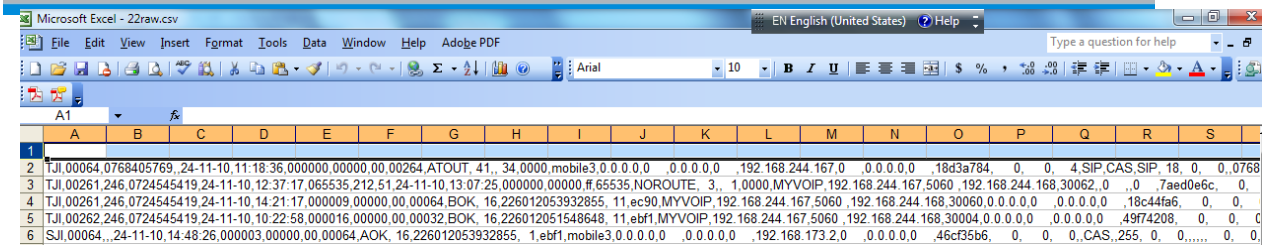


	A	B	C	D	E	F	G	H	I	J	K
1	Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Sign	Remote Sig	End cause
2	1	incoming	mobile3	24-11-10	11:18:36	0	768405769	0	192.168.244.	0	ATOUT
5	4	incoming	mobile1	24-11-10	12:38:56	5	724545419	0	192.168.244.	0	AOK
7	6	outgoing	mobile3	24-11-10	14:21:17	9	246	724545419	192.168.244.	5060	BOK
14	13	incoming	mobile3	24-11-10	14:54:21	274	214083803	0	192.168.244.	0	AOK
15	14	incoming	mobile1	24-11-10	15:01:17	0	768405769	0	192.168.244.	0	BTOUT
16	15	incoming	mobile1	24-11-10	15:01:59	0	768405769	0	192.168.244.	0	BTOUT
17	16	incoming	mobile1	24-11-10	15:03:33	0	768405769	0	192.168.244.	0	ATOUT

or

A	B	C	D	E	F	G	H	I	J	K
Nr	Direction	Interface	Date	Time	Call duratic	ANI	DNIS	Remote Si	Remote Si	End cause
1	incoming	mobile1	25-11-10	9:14:58	0	2.14E+08	0	192.168.24	0	BTOUT
2	outgoing		25-11-10	9:22:43	0	246	51#	192.168.24	5060	NOROUTE
3	incoming	mobile3_di	25-11-10	9:25:08	0	2.14E+08	0	192.168.17	0	TIMEOUT
4	incoming	mobile3_di	25-11-10	9:26:42	0	2.14E+08	0	192.168.17	0	TIMEOUT
5	incoming	mobile1	25-11-10	9:27:04	0	2.14E+08	0	192.168.24	0	BTOUT

RAW:



In raw mode, all calls-related information from the pbx application is saved.
There is no header / explanation, and the volume of information is much higher:

TJI,00064,0768405769,,24-11-10,11:18:36,000000,00000,00,00264,ATOUT, 41,, 34,0000,mobile3,0.0.0.0,0 ,0.0.0.0,0 ,192.168.244.167,0 ,0.0.0.0,0 ,18d3a784, 0, 0, 4,SIP,CAS,SIP, 18, 0, 0,,0768405769,246,0768405769,246, 0, 0, 2, 15

TJI,00261,246,0724545419,24-11-10,12:37:17,065535,212,51,24-11-10,13:07:25,000000,00000,ff,65535,NOROUTE, 3,, 1,0000,MYVOIP,192.168.244.167,5060 ,192.168.244.168,30062,,0 ,,0 ,7aed0e6c, 0, 0, 0,,SIP,, -1, 0, 0,,,,212,, 0, 0, 8,65535

TJI,00261,246,0724545419,24-11-10,14:21:17,000009,00000,00,00064,BOK, 16,226012053932855, 11,ec90,MYVOIP,192.168.244.167,5060 ,192.168.244.168,30060,0.0.0.0,0 ,0.0.0.0,0 ,18c44fa6, 0, 0, 0,mobile3,SIP,CAS, 18, 20, 0,,246,0724545419,246,0724545419, 0, 0, 8, 2

TJI,00262,246,0724545419,24-11-10,10:22:58,000016,00000,00,00032,BOK, 16,226012051548648, 11,ebf1,MYVOIP,192.168.244.167,5060 ,192.168.244.168,30004,0.0.0.0,0 ,0.0.0.0,0 ,49f74208, 0, 0, 0,mobile1,SIP,CAS, 18, 20, 0,,246,0724545419,246,0724545419, 0, 0, 8, 0

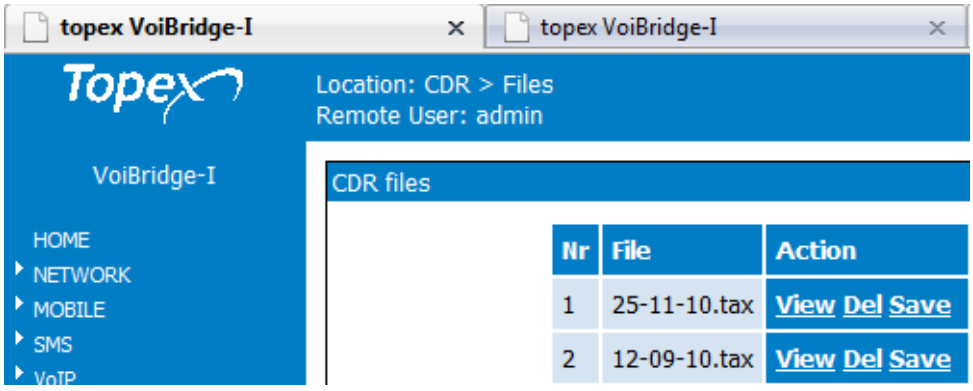
SJI,00064,,,24-11-10,14:48:26,000003,00000,00,00064,AOK, 16,226012053932855, 1,ebf1,mobile3,0.0.0.0,0 ,0.0.0.0,0 ,192.168.173.2,0 ,0.0.0.0,0 ,46cf35b6, 0, 0, 0,,CAS,,255, 0, 0,,,,,, 0, 0, 2,65535

TJI,00064,0214083803,,24-11-10,14:49:07,000000,00000,00,00261,ATOUT, 41,, 25,0000,mobile3,0.0.0.0,0 ,0.0.0.0,0 ,192.168.244.167,0 ,0.0.0.0,0 ,227f26b0, 0, 0, 4,SIP,CAS,SIP, 18, 0, 0,,0214083803,246,0214083803,246, 0, 0, 2, 15

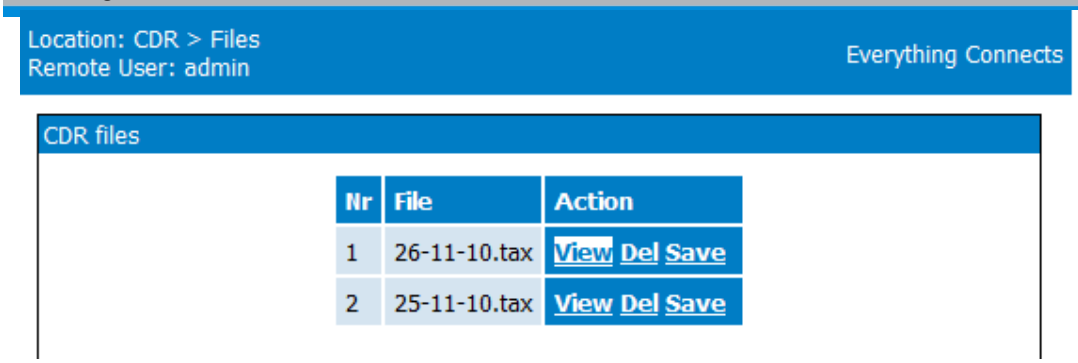
TJI,00032,0214083800,,24-11-10,14:51:47,000000,00000,00,00263,BTOUT, 41,, 1,0000,mobile1,0.0.0.0,0 ,0.0.0.0,0 ,192.168.244.167,0 ,0.0.0.0,0

This is useful when CDR files are further used for automatic processing, another application takes over these files and computes the charges based upon this information.

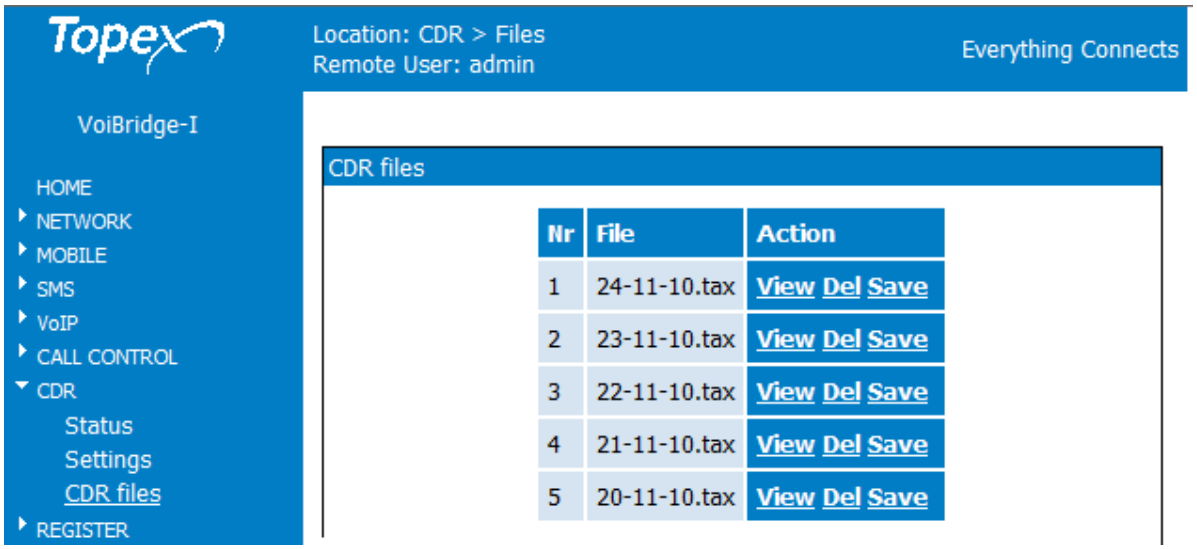
6.8.3CDR Files



This table lists all files, the current one being on top, while the oldest file stored on VoiBridge Liteis located at the bottom. The billing files created by the program running on the equipment include all the information required for detailed billing (taxation) of the calls.



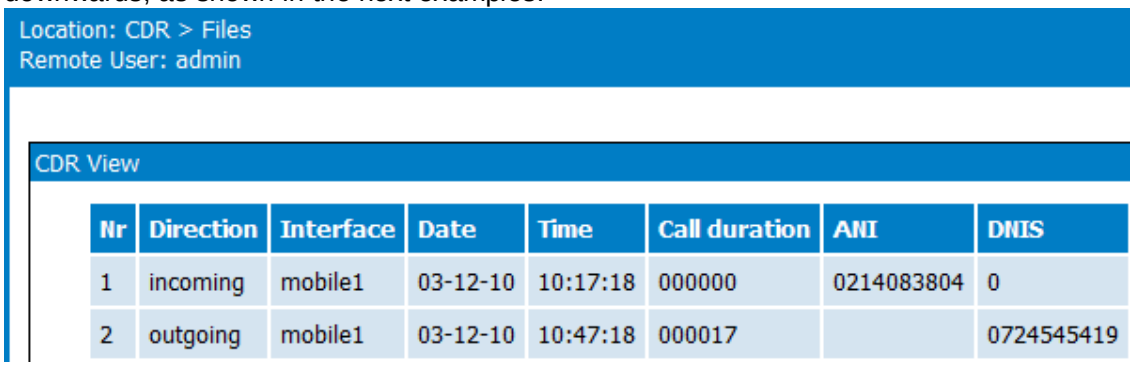
The CDR files are named **date.txt** , where the date is in format DD-MM-YY 9one file is generated each day). These billing files are in coma-delimited text format (csv) and they are stored in the OUT sub- directory of the filesystem. Their format and content depends upon the option you have selected, RAW or Filtrated.



From this list you may select a “date.tax” file, such as 23-11-10.tax, and then choose for it the action to be performed: **View** it, **Delete** it, or **Save** it intro your computer.

6.8.4View CDR Files

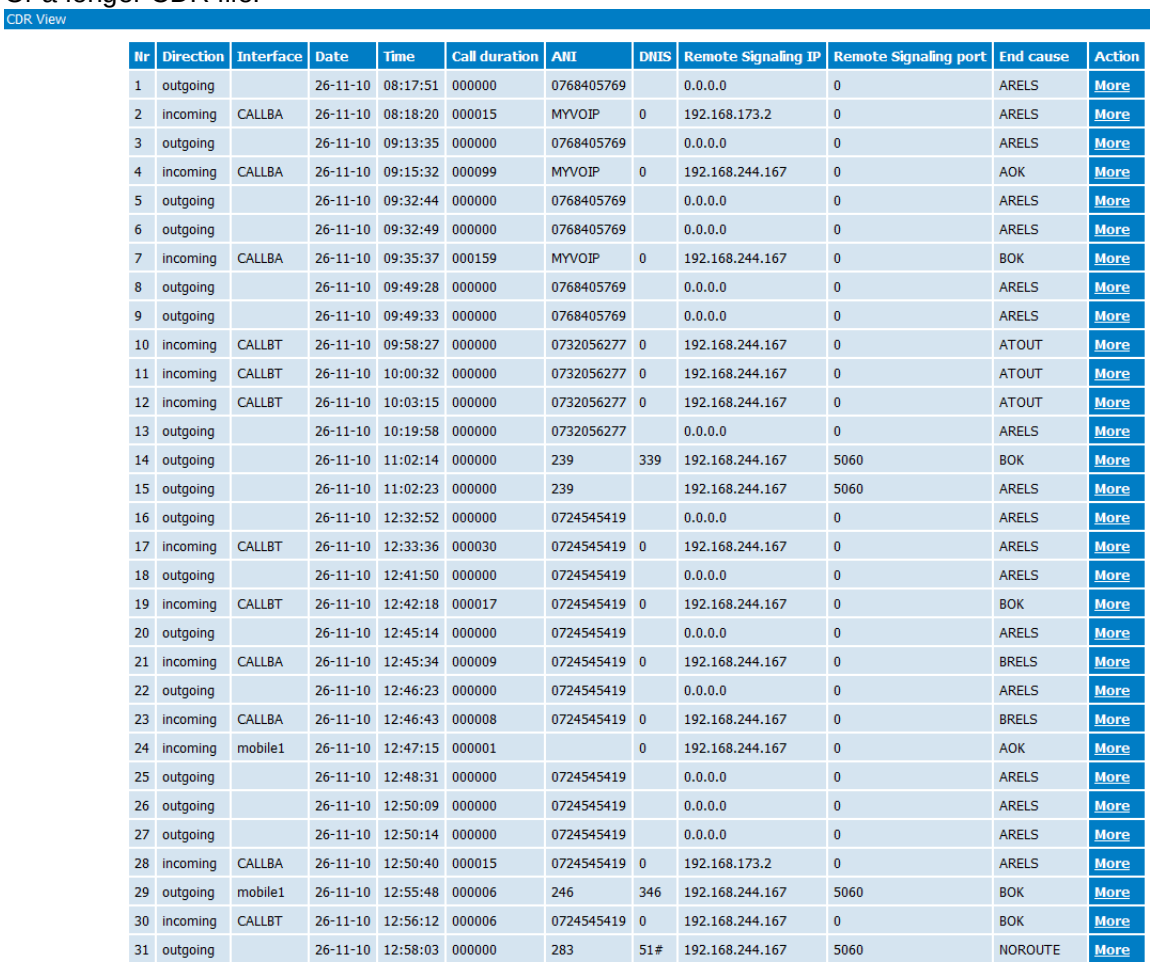
View: displays the CDR file you selected, with the records starting with the oldest in top and going downwards, as shown in the next examples:


Location: CDR > Files
Remote User: admin

CDR View

Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS
1	incoming	mobile1	03-12-10	10:17:18	000000	0214083804	0
2	outgoing	mobile1	03-12-10	10:47:18	000017		0724545419

Or a longer CDR file:


CDR View

Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Signaling IP	Remote Signaling port	End cause	Action
1	outgoing		26-11-10	08:17:51	000000	0768405769		0.0.0.0	0	ARELS	More
2	incoming	CALLBA	26-11-10	08:18:20	000015	MYVOIP	0	192.168.173.2	0	ARELS	More
3	outgoing		26-11-10	09:13:35	000000	0768405769		0.0.0.0	0	ARELS	More
4	incoming	CALLBA	26-11-10	09:15:32	000099	MYVOIP	0	192.168.244.167	0	AOK	More
5	outgoing		26-11-10	09:32:44	000000	0768405769		0.0.0.0	0	ARELS	More
6	outgoing		26-11-10	09:32:49	000000	0768405769		0.0.0.0	0	ARELS	More
7	incoming	CALLBA	26-11-10	09:35:37	000159	MYVOIP	0	192.168.244.167	0	BOK	More
8	outgoing		26-11-10	09:49:28	000000	0768405769		0.0.0.0	0	ARELS	More
9	outgoing		26-11-10	09:49:33	000000	0768405769		0.0.0.0	0	ARELS	More
10	incoming	CALLBT	26-11-10	09:58:27	000000	0732056277	0	192.168.244.167	0	ATOUT	More
11	incoming	CALLBT	26-11-10	10:00:32	000000	0732056277	0	192.168.244.167	0	ATOUT	More
12	incoming	CALLBT	26-11-10	10:03:15	000000	0732056277	0	192.168.244.167	0	ATOUT	More
13	outgoing		26-11-10	10:19:58	000000	0732056277		0.0.0.0	0	ARELS	More
14	outgoing		26-11-10	11:02:14	000000	239	339	192.168.244.167	5060	BOK	More
15	outgoing		26-11-10	11:02:23	000000	239		192.168.244.167	5060	ARELS	More
16	outgoing		26-11-10	12:32:52	000000	0724545419		0.0.0.0	0	ARELS	More
17	incoming	CALLBT	26-11-10	12:33:36	000030	0724545419	0	192.168.244.167	0	ARELS	More
18	outgoing		26-11-10	12:41:50	000000	0724545419		0.0.0.0	0	ARELS	More
19	incoming	CALLBT	26-11-10	12:42:18	000017	0724545419	0	192.168.244.167	0	BOK	More
20	outgoing		26-11-10	12:45:14	000000	0724545419		0.0.0.0	0	ARELS	More
21	incoming	CALLBA	26-11-10	12:45:34	000009	0724545419	0	192.168.244.167	0	BRELS	More
22	outgoing		26-11-10	12:46:23	000000	0724545419		0.0.0.0	0	ARELS	More
23	incoming	CALLBA	26-11-10	12:46:43	000008	0724545419	0	192.168.244.167	0	BRELS	More
24	incoming	mobile1	26-11-10	12:47:15	000001		0	192.168.244.167	0	AOK	More
25	outgoing		26-11-10	12:48:31	000000	0724545419		0.0.0.0	0	ARELS	More
26	outgoing		26-11-10	12:50:09	000000	0724545419		0.0.0.0	0	ARELS	More
27	outgoing		26-11-10	12:50:14	000000	0724545419		0.0.0.0	0	ARELS	More
28	incoming	CALLBA	26-11-10	12:50:40	000015	0724545419	0	192.168.173.2	0	ARELS	More
29	outgoing	mobile1	26-11-10	12:55:48	000006	246	346	192.168.244.167	5060	BOK	More
30	incoming	CALLBT	26-11-10	12:56:12	000006	0724545419	0	192.168.244.167	0	BOK	More
31	outgoing		26-11-10	12:58:03	000000	283	51#	192.168.244.167	5060	NOROUTE	More

Here are shown the most important fields of the CDR files:

Direction: incoming or outgoing;
Interface: mobile interface used by the call, from mobile1 up to from mobile4;

Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Signaling IP	Remote Signaling port	End cause
incoming	mobile3	24-11-10	11:18:36	000000	0768405769	0	192.168.244.167	0	ATOUT
outgoing	mobile3	24-11-10	12:37:17	000005	246	0724545419	192.168.244.167	5060	BOK

Date: in DD-MM-YY format;
Time: in HH-MM-SS format;
Call duration: duration of the call, in seconds;
ANI: Automatic Number Identification = Calling Party, maximum 32 digits. Examples: 246 for a local extension, 0768xxxxxx for a mobile number or 0214999999 for a fixed telephony number;

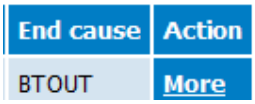
DNIS: Dialed Number Identification Service = Called party. Maximum 32 digits. Examples: 510 for a local extension or 0729999999 for a mobile phone number;

Remote signaling IP and **Remote** signaling port - Filled only for VoIP (SIP or H323 calls). The remote IP address used for signaling , such as 192.168.244.167 or 192.168.173.2 (the address of the VoiBridge Litegateway) and corresponding port, such as 5060;

End Cause: A string explaining the type of Call release. This string tells the party which has hung up, A or B, and the explanation for ending the call (normal release, inexistent number, error, rejected, no route, timeout etc.) These are proprietary causes of the Topex phone exchange application, “centrala’, not standard international codes. See below a list of available release causes:

- AOK - Call connected and disconnected by calling party
- BOK - Call connected and disconnected by called party
- OK - Call connected and disconnected by centrala
- ARELS - Call released before connect by calling party before connect
- BRELS - Call released before connect by called party before connect
- AINEX - Call released before connect by calling party with cause 1 (inex)
- BINEX - Call released before connect by called party with cause 1 (inex)
- ACONG - Call released before connect by calling party with cause 34 (congestion)
- BCONG - Call released before connect by called party with cause 34 (congestion)
- ASERR - Call released before connect by calling party with cause 111 (protocol error)
- BSERR - Call released before connect by called party with cause 111 (protocol error)
- ANOANS - Call released before connect by calling party with cause 19 (no answer)
- BNOANS - Call released before connect by called party with cause 1trc9 (no answer)
- ABUSY - Call released before connect by calling party with cause 17 (user busy)
- BBUSY - Call released before connect by called party with cause 17 (user busy)
- ATOUT - Timeout on calling party leg; call not connected
- BTOUT - Timeout on called party leg; call not connected
- ERRAUTH - Authentication error; used on prepaid
- NOCREDIT - No credit available; used on prepaid
- FINCRED - Credit finished; used on prepaid
- AVMAIL - Call connected to calling party voice mail
- BVMAIL - Call connected to called party voice mail
- NOVOIPCH - No VoIP channel available (VoIP congestion)
- CODECERR - Codec error; codec mismatch between calling and called party
- NOLICENCE - License expired
- ACLREJECT - Access list reject; source of call is not added in access in table
- ANI_RESTRICTED - ANI is not allowed to complete the call
- DNIS_RESTRICTED - DNIS is not allowed to complete the call

- NORTPPROC - No RTP pool process available
- MOREDIG - Need more digits in order to take a routing decision
- RELEASE - Call released by centrala
- ENDOK - Call connected and disconnected by centrala
- SERR - Signaling error, call released by centrala before connect
- INEX - DNIS does not exist
- A_CONGRES -
- NOPRICE - No price found; Call released by centrala
- ENDCONG - Congestion; Call released by centrala
- NOROUTE - No route found
- DNIS REJECTED - Call rejected (not allowed) by centrala
- REDIRECTED - Call redirected by centrala
- REROUTED - Call rerouted on other route
- TIMEOUT - Centrala internal timeout; call not connected
- PRICE_ERROR - Error in definition of billing price
- BREDIRECT - Call redirected by called party
- PREPAID_NOT_FOUND - Prepaid user not found
- ACCT_DISABLED - Account is disabled
- USER_OFFLINE - SIP user is offline
- CONTACT_ERROR - Contact checking error; SIP user is not registered and is trying to make calls, but is not allowed on current configuration, see check_invite_contact line from Sip pbx.cfg
- CLASS_DISABLED - Incoming class assigned to the call is disabled
- INVALID_CLASSID - Incoming class id assigned to the call is invalid
- CLASS_RESTRICT - Incoming class restricted due to max time, max cost, max calls, max rate limits
- KILLED - Call killed before connect; Call can be killed from telnet see kill all calls or kill call from Telnet commands Call can also be killed due to some card errors or physical layer alarms (ex LIS, RJA, AIS)
- OK_KILLED - Connected call killed; see the above cases
- OK_SERR - Connected call released due to some signaling errors.

Action – the last column of the CDR table is called “Action”, you can click the option **More** to display more information. This gives you access to the full information of the call detail records file, as you can see in the next examples.	

CDR More

Back

Type	TJI
Source transcoding port	00064
Incoming ANI	0214083806
Incoming DNIS	
Date	25-11-10
Time	09:25:08
Call duration	000000
Billing units	00000
SIM number	ff
Destination transcoding port	65535
End cause	TIMEOUT
End code	41
IMSI	
Call selection time	11
GSM CELL	0000
Incoming class name	mobile3_disa
Source signaling IP	0.0.0.0
Source signaling port	0
Source RTP IP	0.0.0.0
Source RTP port	0
Destination signaling IP	192.168.173.2
Destination signaling port	0
Destination RTP IP	0.0.0.0
Destination RTP port	0
25 Call session id	7cb6c2ef
26 Packet loss	0
Jitter	0
Incoming client id	7
Outgoing class name	
Incoming protocol	CAS
Outgoing protocol	
Codec	255
Packetization time	0
Outgoing client id	0
Gateway name	
Outgoing ANI	
Outgoing DNIS	
Original ANI	0214083806

Back

Type	TJI
Source transcoding port	00263
Incoming ANI	0214083800
Incoming DNIS	350
Date	25-11-10
Time	14:41:44
Call duration	000000
Billing units	00000
SIM number	ff
stination transcoding port	65535
End cause	BOK
End code	16
IMSI	
Call selection time	1
GSM CELL	0000
Incoming class name	MYVOIP
Source signaling IP	192.168.244.167
Source signaling port	5060
Source RTP IP	192.168.244.168
Source RTP port	30062
Destination signaling IP	192.168.173.12
Destination signaling port	0
Destination RTP IP	192.168.173.12
Destination RTP port	30014
25 Call session id	1225c45f
26 Packet loss	0
Jitter	0
Incoming client id	0
Outgoing class name	
Incoming protocol	SIP
Outgoing protocol	
Codec	18
Packetization time	20

The volume of data is very large, it is not possible to see all these in a table, as previous, this is why they are displayed one record per page.
The output of the “centrala” pbx application to the CDR files does include all the following fields:

1 Type
2 Source transcoding port
3 Incoming ANI
4 Incoming DNIS
5 Date
6 Time
7 Call duration
8 Billing units
9 SIM number
10 Destination transcoding port
11 End cause
12 End code
13 IMSI
14 Call selection time
15 GSM CELL
16 Incoming class name
17 Source signaling IP
18 Source signaling port
19 Source RTP IP
20 Source RTP port
21 Destination signaling IP
22 Destination signaling port
23 Destination RTP IP
24 Destination RTP port
25 Call session id
26 Packet loss
27 Jitter
28 Incoming client id
29 Outgoing class name
30 Incoming protocol
31 Outgoing protocol
32 Codec
33 Packetization time
34 Outgoing client id
35 Gateway name
36 Outgoing ANI
37 Outgoing DNIS
38 Original ANI
39 Connected DNIS
40 Incoming billing profile id
41 Outgoing billing profile id
42 Incoming class id
43 Outgoing class id
44 Billing DNIS
45 Incoming price
46 Incoming currency
47 Call type
48 Incoming ANI Nature of Address Indicator
49 Incoming DNIS Nature of Address Indicator
50 Outgoing ANI Nature of Address Indicator
51 Outgoing DNIS Nature of Address Indicator
52 Centrex group
53 Outgoing price
54 Outgoing currency

“End Cause ” is the proprietary (specific to Topex)string for the release cause, while “End Code” are the standard international ISDN Cause Codes (ERROR Codes) according to Q850 [Q931] :

Code	Cause
0	Valid cause code not yet received
1	Unallocated (unassigned) number
2	No route to specified transit network (WAN)
3	No route to destination
4	send special information tone
5	misdialed trunk prefix.
6	Channel unacceptable
7	Call awarded and being delivered in an established channel
8	Prefix 0 dialed but not allowed

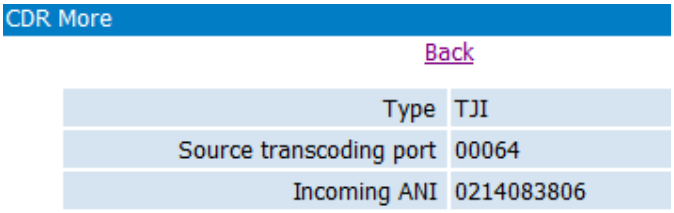
---------- and so on …

Call selection time	2
GSM CELL	0000
Incoming class name	mobile1
Source signaling IP	0.0.0.0
Source signaling port	0
Source RTP IP	0.0.0.0
Source RTP port	0
Destination signaling IP	192.168.244.167
Destination signaling port	0
Destination RTP IP	0.0.0.0
Destination RTP port	0
25 Call session id	20c4269a
26 Packet loss	0
Jitter	0
Incoming client id	5
Outgoing class name	SIP
Incoming protocol	CAS
Outgoing protocol	SIP
Codec	18
Packetization time	0
Outgoing client id	0
Gateway name	
Outgoing ANI	0214083800
Outgoing DNIS	283
Original ANI	0214083800
Connected DNIS	283

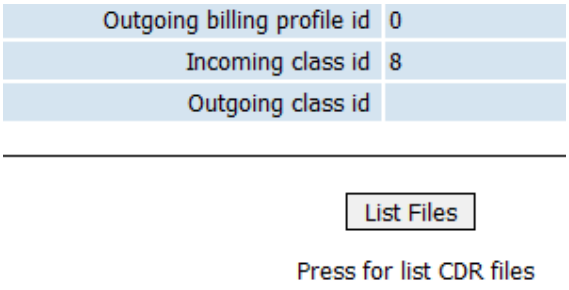
SIM number	ff
Destination transcoding port	65535
End cause	TIMEOUT
End code	41
IMSI	
Call selection time	9
GSM CELL	0000
Incoming class name	mobile3_disa
Source signaling IP	0.0.0.0
Source signaling port	0
Source RTP IP	0.0.0.0
Source RTP port	0
Destination signaling IP	192.168.173.2
Destination signaling port	0
Destination RTP IP	0.0.0.0
Destination RTP port	0
25 Call session id	530d3b3c
26 Packet loss	0
Jitter	0
Incoming client id	7
Outgoing class name	
Incoming protocol	CAS
Outgoing protocol	
Codec	255

To go back from this “More’ view you can either:

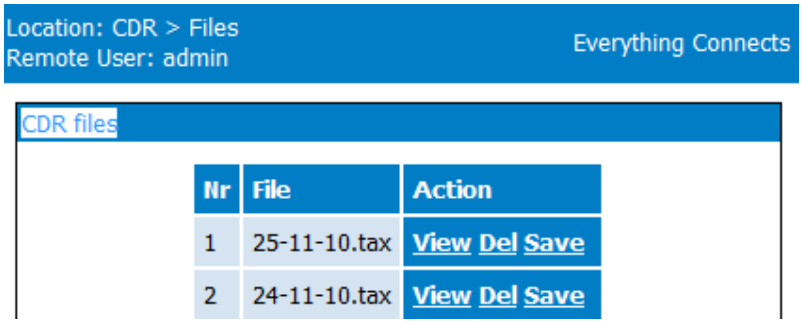
1. Use the link “Back” on top of the window, to go back to the list of records (CDR View);



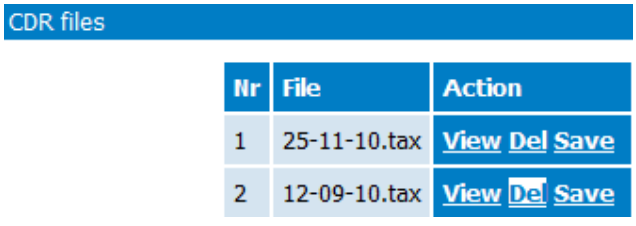
2. Press the button “List Files” located at the bottom of the window;



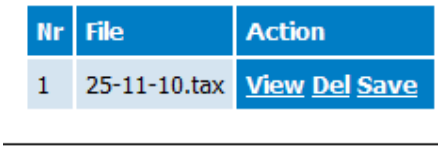
to go back to the list of CDR files:

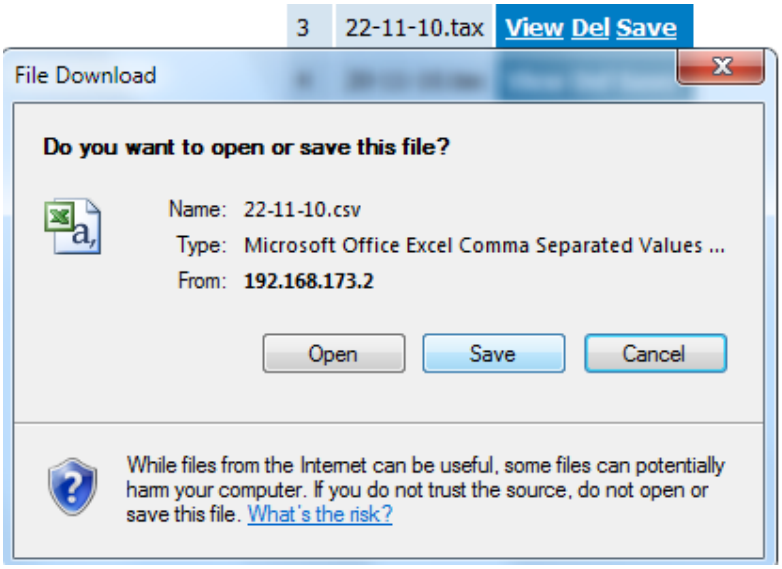


Del – use Delete to permanently erase a CDR file that you no longer need.



The CDR file for September 12 has been deleted, now the list contains only the current file, of November 25:

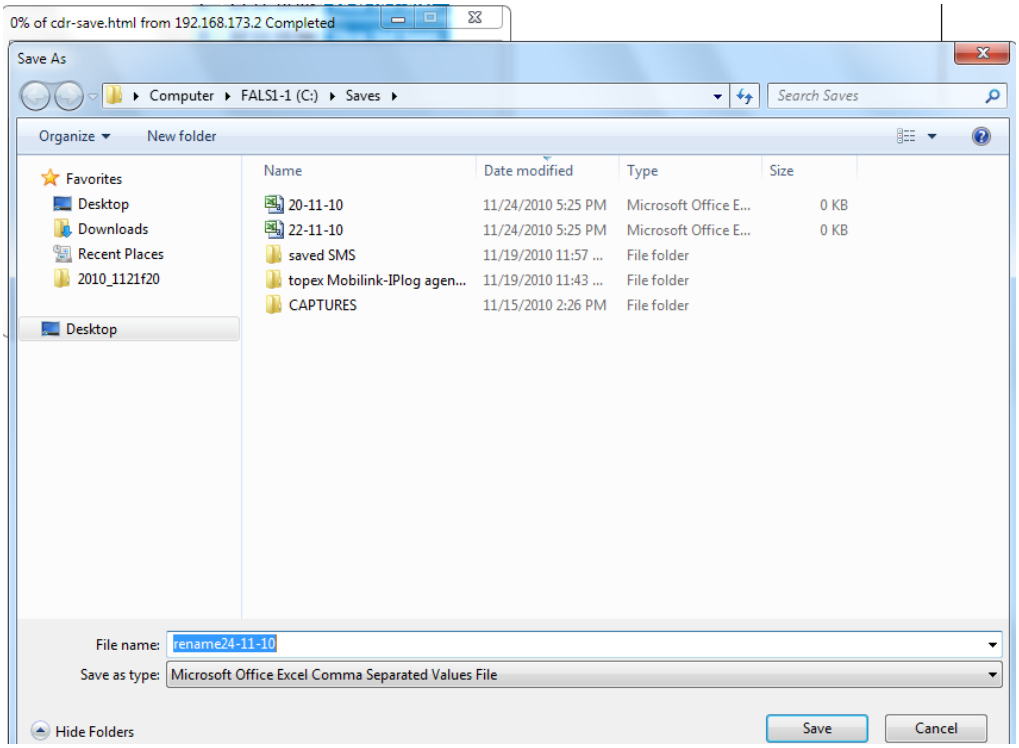



3 22-11-10.tax View Del Save
File Download
Do you want to open or save this file?
Name: 22-11-10.csv
Type: Microsoft Office Excel Comma Separated Values ...
From: 192.168.173.2
Open
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

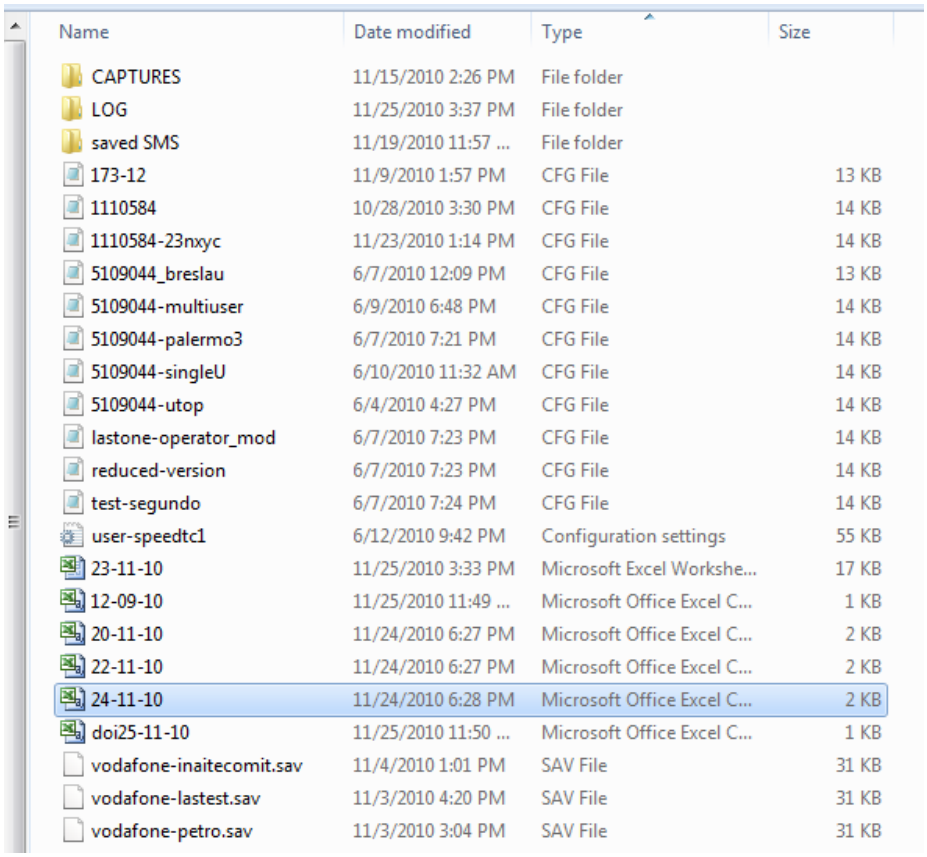
Finally, the button **Save** is used to save the whole of the taxation file, from the beginning up to the latest entry, to your computer.

The CDR file will be stored on the PC, so later it can be viewed even when the TOPEX VoiBridge Litegateway equipment is no longer connected!

You ca change the default DD-MM-YY name for the CDR file , as you wish:

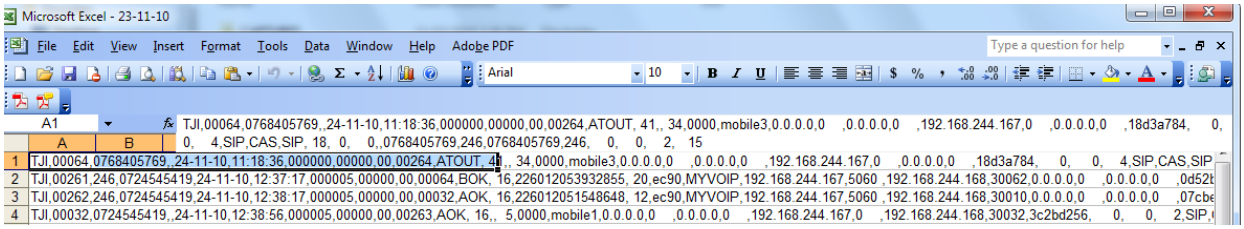


Later, you may go to the respective subfolder, choose the file you want from the list of “MS Office Excel CSV File”:

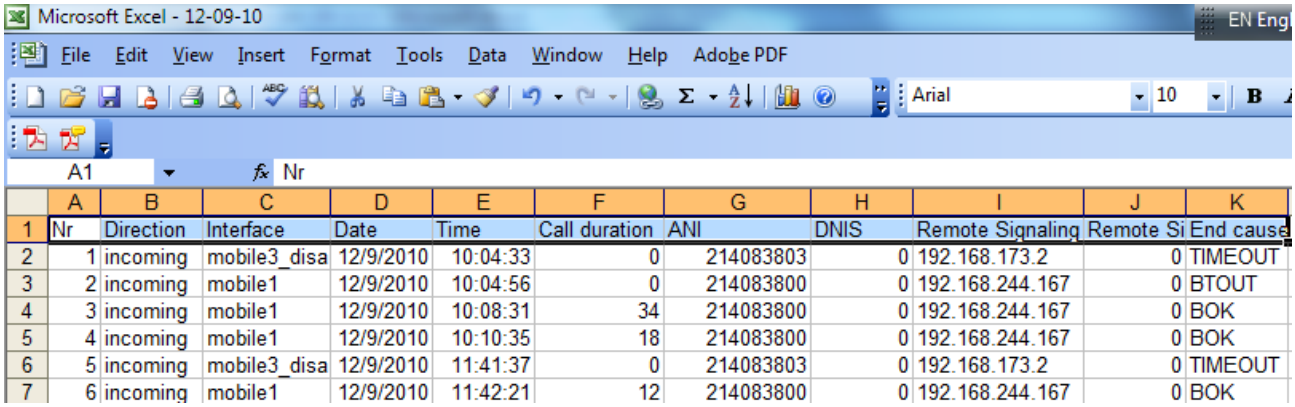


Name	Date modified	Type	Size
CAPTURES	11/15/2010 2:26 PM	File folder	
LOG	11/25/2010 3:37 PM	File folder	
saved SMS	11/19/2010 11:57 ...	File folder	
173-12	11/9/2010 1:57 PM	CFG File	13 KB
1110584	10/28/2010 3:30 PM	CFG File	14 KB
1110584-23nxyc	11/23/2010 1:14 PM	CFG File	14 KB
5109044_breslau	6/7/2010 12:09 PM	CFG File	13 KB
5109044-multiuser	6/9/2010 6:48 PM	CFG File	14 KB
5109044-palermo3	6/7/2010 7:21 PM	CFG File	14 KB
5109044-singleU	6/10/2010 11:32 AM	CFG File	14 KB
5109044-utop	6/4/2010 4:27 PM	CFG File	14 KB
lastone-operator_mod	6/7/2010 7:23 PM	CFG File	14 KB
reduced-version	6/7/2010 7:23 PM	CFG File	14 KB
test-segundo	6/7/2010 7:24 PM	CFG File	14 KB
user-speedtc1	6/12/2010 9:42 PM	Configuration settings	55 KB
23-11-10	11/25/2010 3:33 PM	Microsoft Excel Workshe...	17 KB
12-09-10	11/25/2010 11:49 ...	Microsoft Office Excel C...	1 KB
20-11-10	11/24/2010 6:27 PM	Microsoft Office Excel C...	2 KB
22-11-10	11/24/2010 6:27 PM	Microsoft Office Excel C...	2 KB
24-11-10	11/24/2010 6:28 PM	Microsoft Office Excel C...	2 KB
doi25-11-10	11/25/2010 11:50 ...	Microsoft Office Excel C...	1 KB
vodafone-inaitecomit.sav	11/4/2010 1:01 PM	SAV File	31 KB
vodafone-lastest.sav	11/3/2010 4:20 PM	SAV File	31 KB
vodafone-petro.sav	11/3/2010 3:04 PM	SAV File	31 KB

and open it for view-ing, either with a spreadsheet utility:



(CDR file saved “RAW”)



	A	B	C	D	E	F	G	H	I	J	K
1	Nr	Direction	Interface	Date	Time	Call duration	ANI	DNIS	Remote Signaling	Remote Si	End cause
2	1	incoming	mobile3_disa	12/9/2010	10:04:33	0	214083803	0	192.168.173.2	0	TIMEOUT
3	2	incoming	mobile1	12/9/2010	10:04:56	0	214083800	0	192.168.244.167	0	BTOUT
4	3	incoming	mobile1	12/9/2010	10:08:31	34	214083800	0	192.168.244.167	0	BOK
5	4	incoming	mobile1	12/9/2010	10:10:35	18	214083800	0	192.168.244.167	0	BOK
6	5	incoming	mobile3_disa	12/9/2010	11:41:37	0	214083803	0	192.168.173.2	0	TIMEOUT
7	6	incoming	mobile1	12/9/2010	11:42:21	12	214083800	0	192.168.244.167	0	BOK

CDR file save “Filtrated” and formatted)
or with the Notepad text editor:

12-09-10 - Notepad

File Edit Format View Help

```
"Nr","Direction","Interface","Date","Time","Call duration","ANI","DNIS","Remote Signaling IP"
"1","incoming","mobile3_disa","12-09-10","10:04:33","000000","0214083803","    0","192.168.17
10","10:04:56","000000","0214083800","    0","192.168.244.167","0    ","BTOUT""3","incoming",
0","192.168.244.167","0    ","BOK""4","incoming","mobile1","12-09-10","10:10:35","000018","02
"5","incoming","mobile3_disa","12-09-10","11:41:37","000000","0214083803","    0","192.168.17
10","11:42:21","000012","0214083800","    0","192.168.244.167","0    ","BOK""7","incoming","m
0","192.168.173.2","0    ","TIMEOUT"
```

CDR file saved “Filtrated” and formatted)

25-11-10 - Notepad

EN English (United States) Help

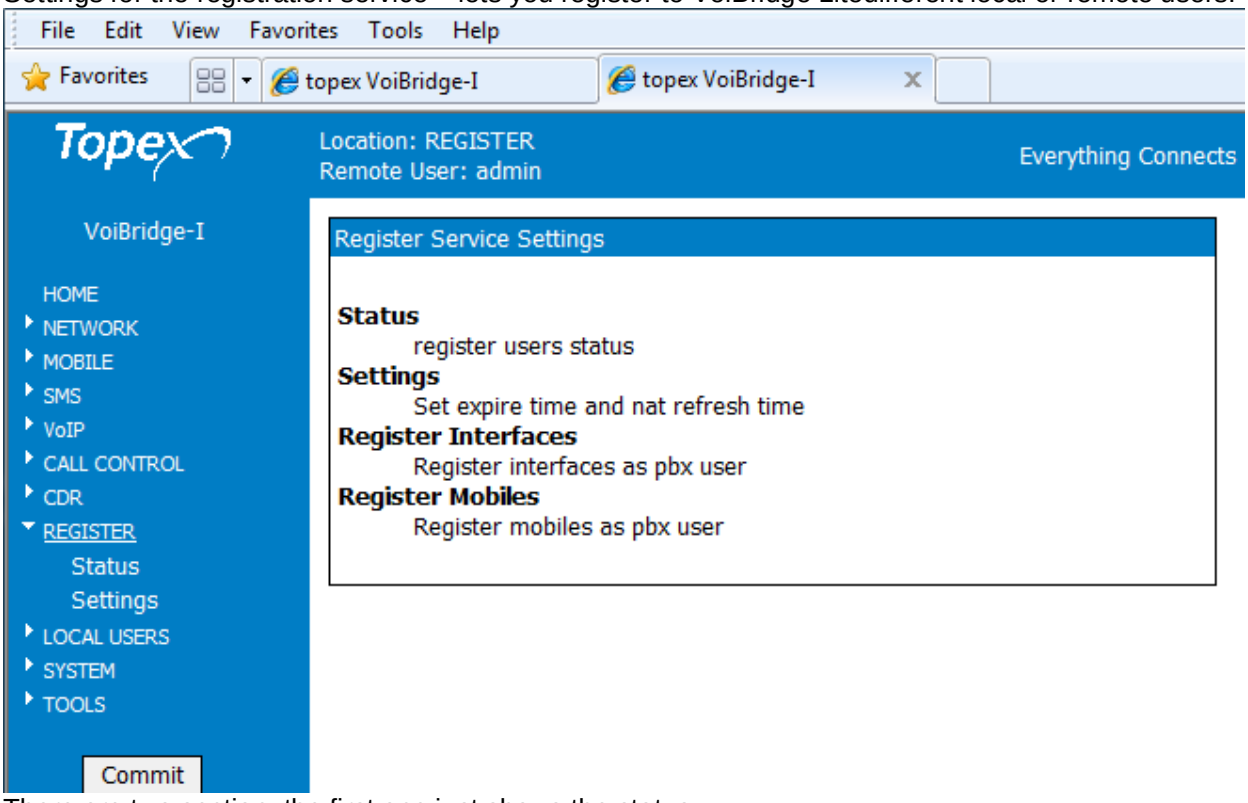
File Edit Format View Help

```
TJI,00032,0214083800,,25-11-10,09:14:58,000000,00000,00,00261,BTOUT, 41,,  2,0000,mobile1,0.0.0.0,0    ,0.0.0.0,0    ,192.168.244.167,0    ,0.0.
,20c4269a,    0,    0,    5,SIP,CAS,SIP, 18,  0,    0,,0214083800,283,0214083800,283,    0,    0,    0,   15
TJI,65535,246,51#,25-11-10,09:22:43,000000,00000,ff,65535,NOROUTE,  3,,  1,0000,MYVOIP,192.168.244.167,5060 ,192.168.244.168,30018,,0    ,,0
 0,    0,    0,,SIP,, -1,  0,    0,,,,246,,    0,    0,    8,65535
TJI,00064,0214083806,,25-11-10,09:25:08,000000,00000,ff,65535,TIMEOUT, 41,, 11,0000,mobile3_disa,0.0.0.0,0    ,0.0.0.0,0    ,192.168.173.2,0
,7cb6c2ef,    0,    0,    7,,CAS,,255,  0,    0,,,,0214083806,,    0,    0,    6,65535
TJI,00064,0214083803,,25-11-10,09:26:42,000000,00000,ff,65535,TIMEOUT, 41,, 11,0000,mobile3_disa,0.0.0.0,0    ,0.0.0.0,0    ,192.168.173.2,0
,5f76956d,    0,    0,    7,,CAS,,255,  0,    0,,,,0214083803,,    0,    0,    6,65535
TJI,00032,0214083800,,25-11-10,09:27:04,000000,00000,00,00262,BTOUT, 41,,  1,0000,mobile1,0.0.0.0,0    ,0.0.0.0,0    ,192.168.244.167,0    ,0.0.
,3dfb6085,    0,    0,    5,SIP,CAS,SIP, 18,  0,    0,,0214083800,283,0214083800,283,    0,    0,    0,   15
TJI,00032,0214083800,,25-11-10,09:34:53,000000,00000,00,00263,BTOUT, 41,,  1,0000,mobile1,0.0.0.0,0    ,0.0.0.0,0    ,192.168.244.167,0    ,0.0.
,6cb73363,    0,    0,    5,SIP,CAS,SIP, 18,  0,    0,,0214083800,283,0214083800,283,    0,    0,    0,   15
TJI,00064,0214083803,,25-11-10,09:53:28,000000,00000,ff,65535,TIMEOUT, 41,, 11,0000,mobile3_disa,0.0.0.0,0    ,0.0.0.0,0    ,192.168.173.2,0
,3cebc29f,    0,    0,    7,,CAS,,255,  0,    0,,,,0214083803,,    0,    0,    6,65535
TJI,00064,0214083803,,25-11-10,12:07:00,000000,00000,ff,65535,TIMEOUT, 41,,  9,0000,mobile3_disa,0.0.0.0,0    ,0.0.0.0,0    ,192.168.173.2,0
,530d3b3c,    0,    0,    7,,CAS,,255,  0,    0,,,,0214083803,,    0,    0,    6,65535
TJI,00032,0214083800,,25-11-10,12:07:46,000001,00000,00,00261,AOK, 16,, 22,0000,mobile1,0.0.0.0,0    ,0.0.0.0,0    ,192.168.244.167,0
```

CDR file saved “RAW”, with all information and no formatting)

6.9 REGISTER

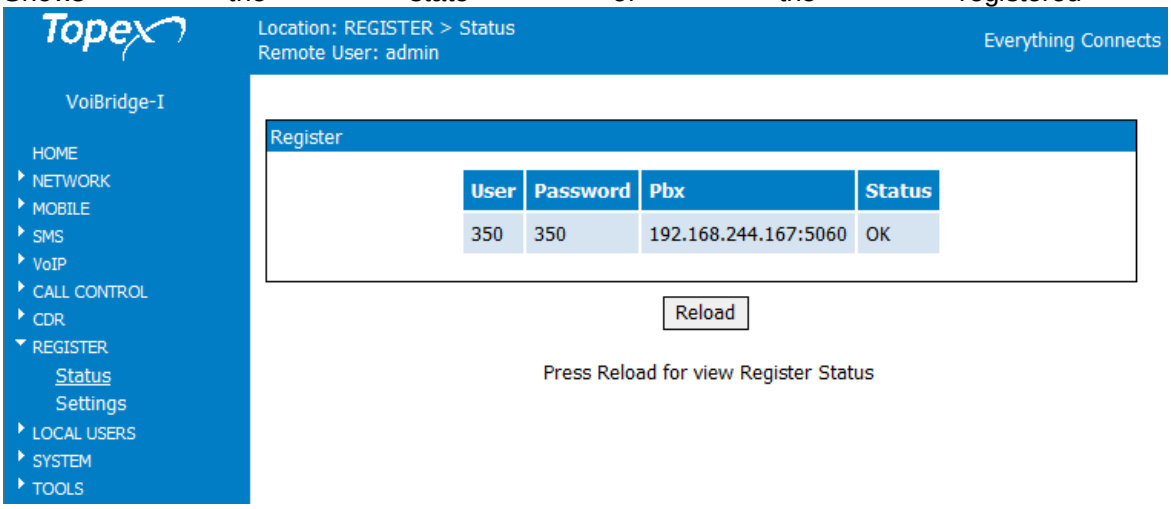
Settings for the registration service – lets you register to VoiBridge Litedifferent local or remote users:



There are two section, the first one just shows the status.

6.9.1 Status

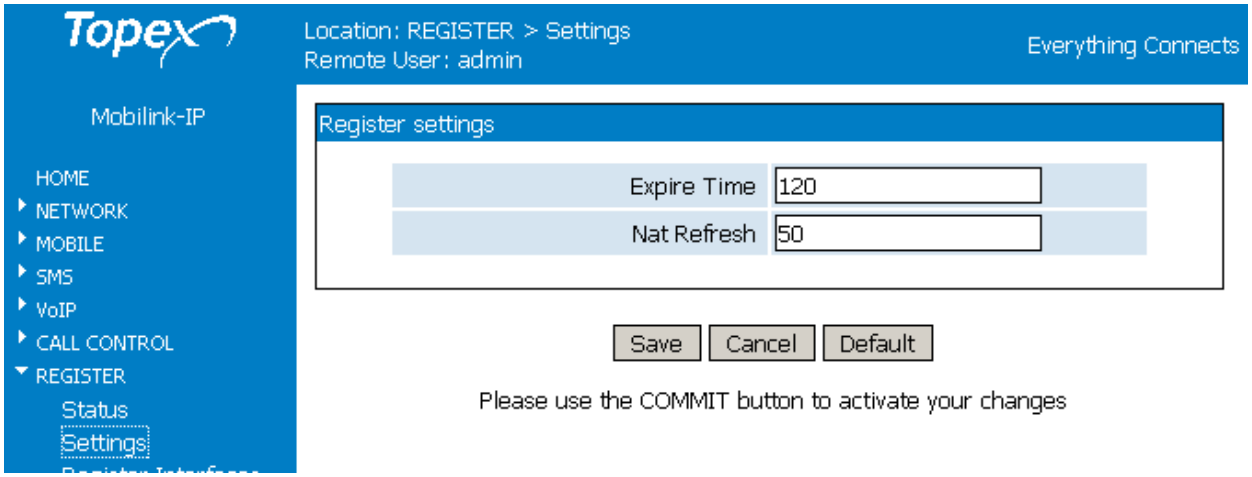
Shows the state of the registered users:



There are shown all attempts at registration to the IP PBX (user and password) and their state: either successfully registered (OK) or failed.

User	Password	Pbx	Status
350	350	192.168.244.167:5060	OK
346	346	192.168.244.167:5060	OK
370	370	192.168.244.167:5060	OK
298	298	192.168.244.167:5060	Failed
650	650	192.168.244.167:5060	Failed

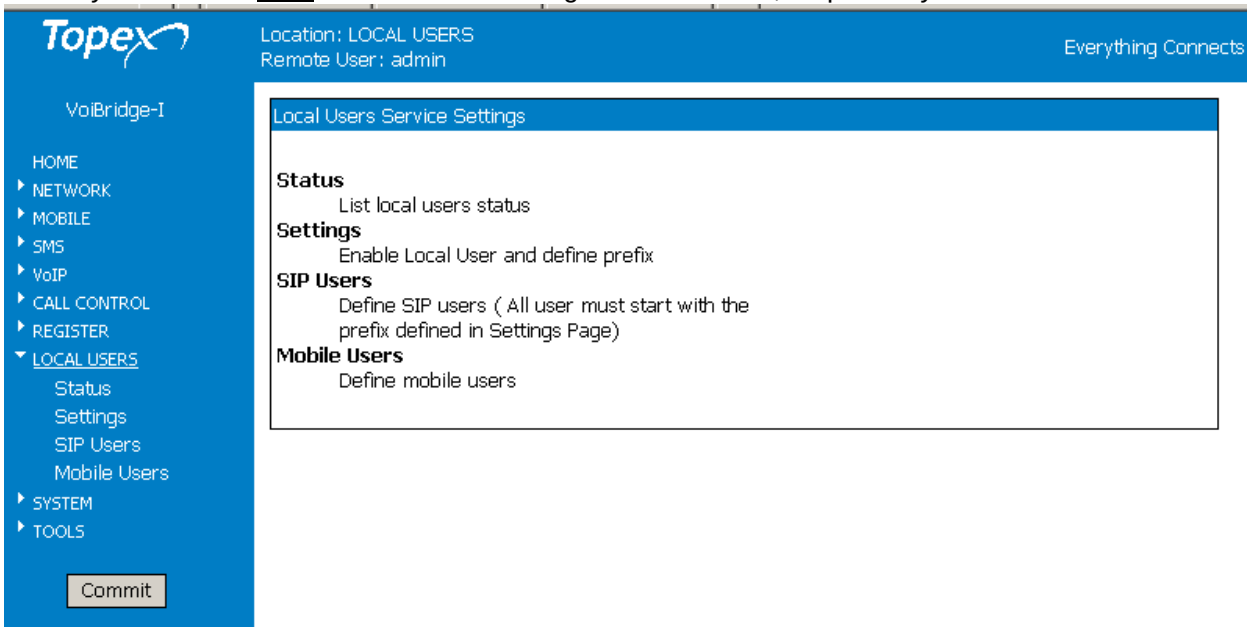
6.9.2 Settings



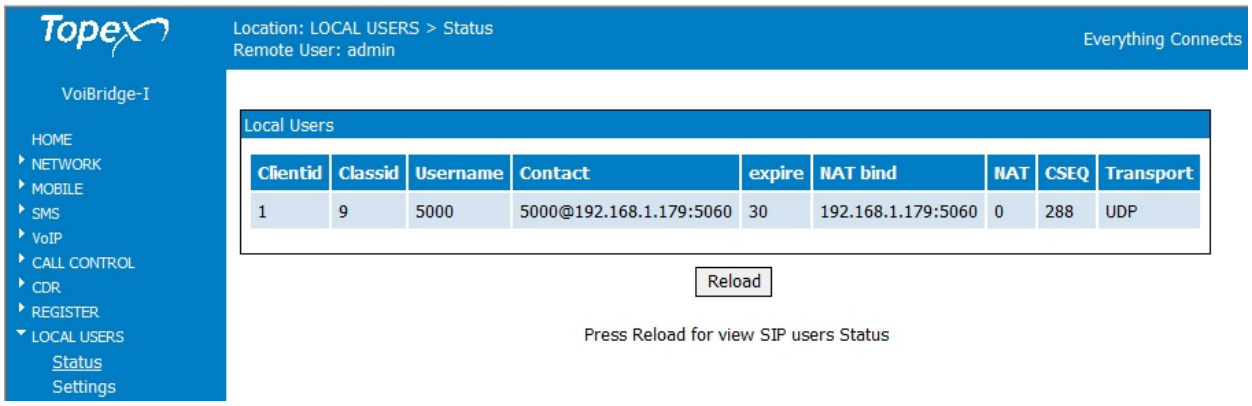
Here you can set general parameters for registration.
These are **Expire Time**, time interval after which the registration is repeated, and **NAT refresh**, the duration while the NAT service remains open after a data packet is sent from VoiBridge-Ito the remote PBX, to allow the PBX to call back the VoiBridge Lite equipment.
Both values are expressed in seconds.

6.10 LOCAL USERS

Allows you to define local users of the VoIBridgeI4-SSM device, respectively SIP users and Mobile users.



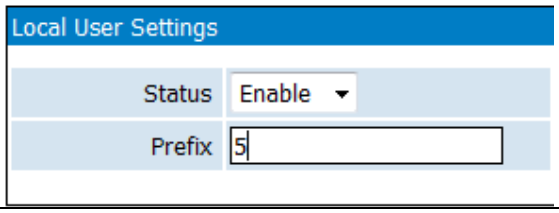
6.9.1 Local Users Status



Shows the state of the currently registered users, such as “5000’ at the IP address of 192.168.1.179 on port 5060.

6.9.2 Local Users Settings

General settings for the local users.

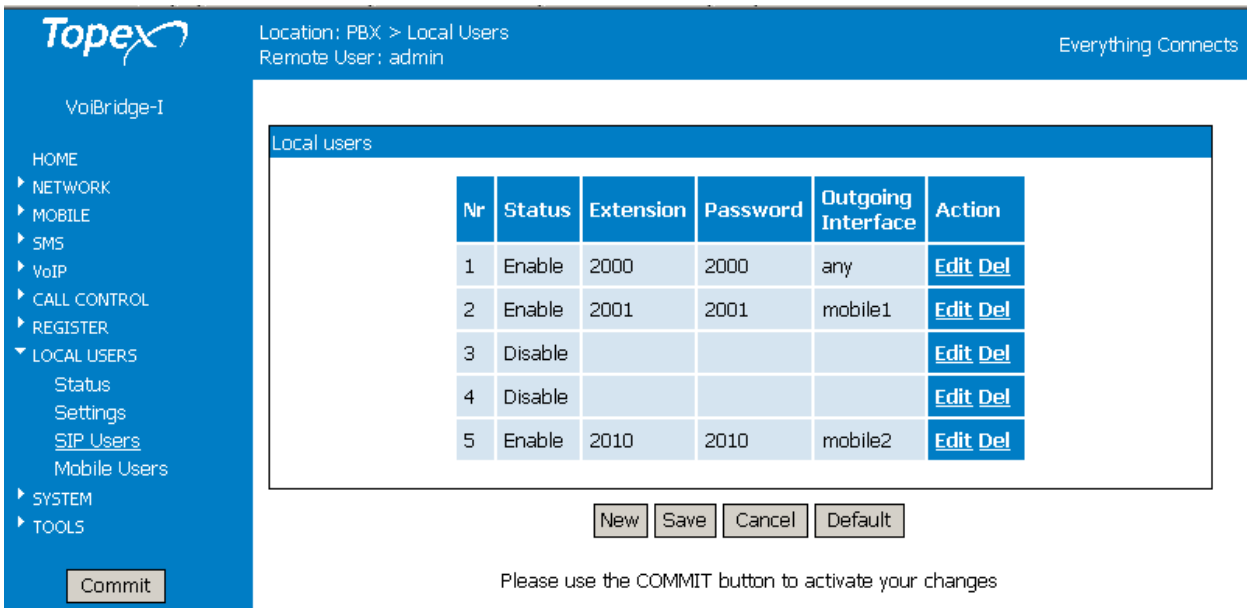


General settings for the local users.

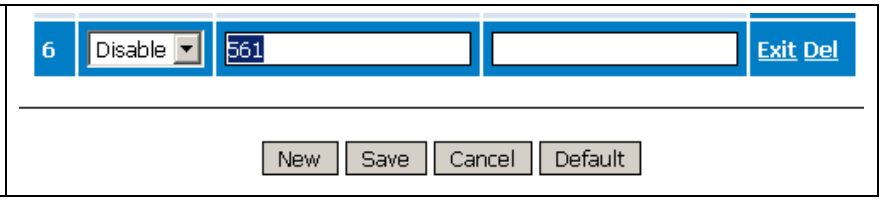
Status – **Enable** or Disable.
If the local users are not Enabled, they will register, but they won't be able to be called.

Prefix – a prefix that allows calls to be sent to the local users.
All SIP users must start with this prefix.
It must be different form the prefix used by the IP PBX.
For instance, when the extensions of the IP PBX are local numbers starting with 2 or 3 (201, 350 etc), the prefix for SIP local users should be "5". Everything that does NOT begin with the digit "5", will be sent to the PBX. Depending upon the actual settings of the PBX, a single digit may be enough, or you must specify several, such as "50"

6.9.3 Local Users Definition



Register the SIP Users who will be able to use the VoiBridge Lite equipment for calls.

The list is empty at first - click the button **New** to create a new (empty) record. Then use **Edit** to enter the data for the specific SIP user:	

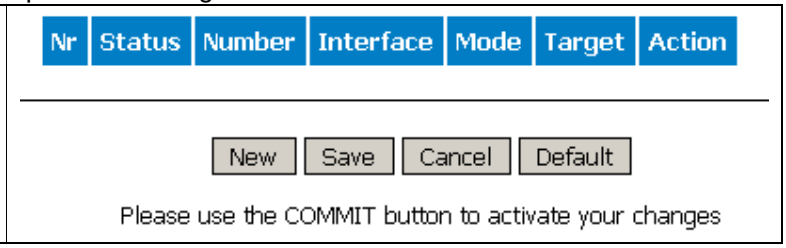
Use Exit to leave the current line , then Save to save the latest settings.

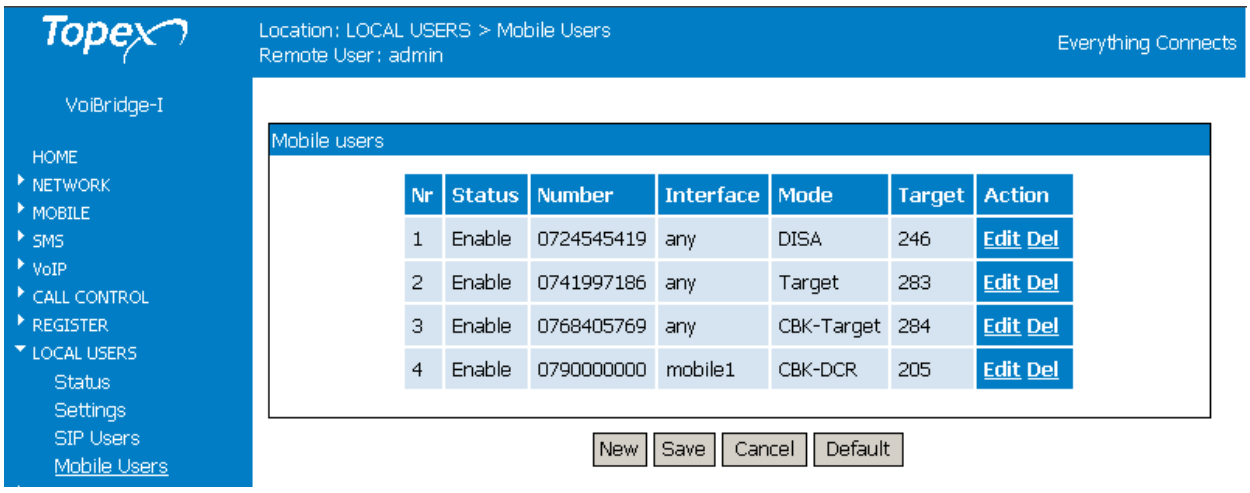
For each user, fill in the local extension number, such as “502”, and the corresponding password, used together with SIP username for SIP user registration.
The settings for expiration tine and NAT refresh are global (for all users), and they have been.

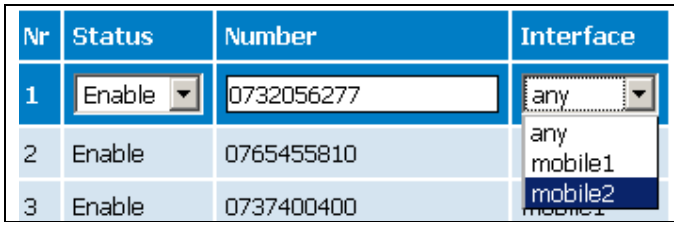
Notice that each entry in the list of registered SIP users may be individually enabled or disabled, so there can be a list with several users, out of which only some are currently enabled (active).

6.9.4 Mobile Users Definition

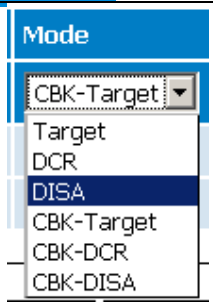
Define the local Mobile users. Registers some mobile phone numbers as user, which may also be considered as IP phones registered to the IP-phone exchange.

At first, the list is empty. You can create New entries, edit them, and You can individually Enable or Disable each entry in this “Mobile user” table.	



	Enter the mobile phone number and associate it with one of the mobile interfaces, or leave it to “any”, for use with any mobile modules.

Then select the **Mode**, which describes how the incoming call from the respective mobile number will be treated by VoIBridgeI4 IP. There are two groups of three options, direct (straightforward) and with call-back. For each of these, you have three choices:
Target – the call is routed to the target, such as the number of a local extension, 289.
DCR – Dynamic Call Routing. Instead of a static routing table, dynamic routing is used, when a mobile user rings, he will be automatically connected to the extension that has called him previously!
DISA – the caller receives DISA tone, so he can dial the number of the destination using DTMF. The same options are also available with CBK (call-back) function.

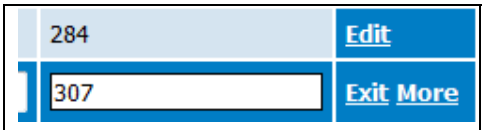


CBK

The call-back feature (CBK) means that when a number form the list calls in, VoiBridge Litehangs up, then initiates a call to the respective number, placing him in connection with the intended target.
This way, the clients in the fields will no longer be charged for the calls, the billing will be for the SIM cards used in VoIBridgeI4 IP!
With call-back, there are also available three modes of treating the incoming calls, as target (**CBK-target**), as DISA (**CBK-DISA**) or using Dynamic routing of calls (CBK-DCR)

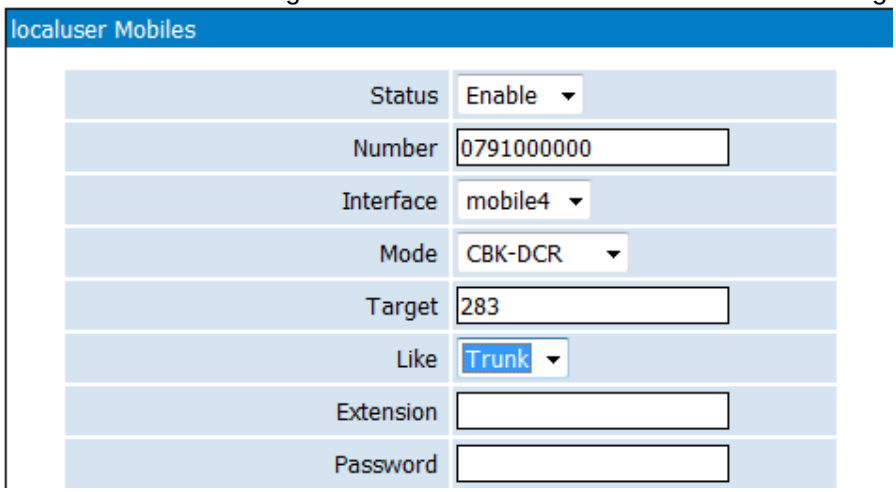
Note:
In "CALL CONTROL>Incoming Calls" there is no CBK option. Only the mobile numbers listed in the above table can benefit of the callback feature, to prevent abuse!

Target – when you select the mode Target, you must also complete the field Target, enter the number of the destination for the incoming call.
Here, target has been set to extension number "283"



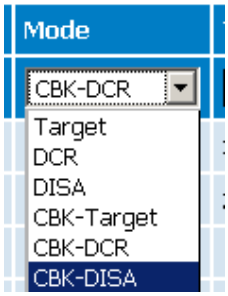
Action – from the last column, select the action to be performed. When you are editing one of the "Localuser Mobiles" rows, the last field, Action, provides you with the options **Edit**, to make changes, respectively **Exit**, to get out, or **More**, to access further parameters.

Click the link "More" to go to the next window for localuser Mobile settings, as shown below:



Select Enable to activate the feature, enter the remote mobile phone number that you want to register as PBX extension, then choose one of the four mobile interfaces to assign it.
You can leave it to the default “any”, or lock it to one of the GSM modules, “mobile 1”, “mobile 2”, “mobile 3” or “mobile 4”.

Mode – establishes how the incoming calls will be treated. There are two main options, direct (straightforward) and with call-back. For each of these, you have three choices:
Target – the call is routed to the target, such as the number of a local extension, 289.
DCR – Dynamic Call Routing. Instead of a static routing table, dynamic routing is used, when a mobile user rings, he will be automatically connected to the extension that has called him previously!
DISA – the caller receives DISA tone, so he can dial the number of the destination using DTMF.



The same three options are also available with CBK (call-back) function.

6.9.5 Dynamic Call Routing and Call-back (CBK) Operation

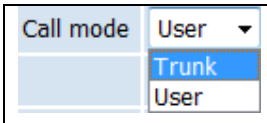
DCR has been explained in the chapter about Call Control.
Here it works in the same way, except that the mobile users are no longer registered as SIP users of the IP-PBX!
The **call-back** feature means that when a phone number form the list calls in, VoiBridge I4-GSM hangs up, then initiates a call back to the respective mobile number, placing him in connection with the intended target.
This way, the clients in the field will no longer be charged for the calls, instead the billing will be for the SIM cards used in VoIBridgeI4 gateway!

Port	Direction	Call Type	State	Protocol	ANI	DNIS	ips	iprtps	Duration	SID
32	CALLBA	in	connected	CAS	MYVOIP	283	0.0.0.0	0.0.0.0	54	3de8095d
263	SIP	out	connected	SIP	MYVOIP	283	192.168.244.167	192.168.244.168	40	3de8095d

With call-back, there are also available three modes of treating the incoming calls, as target (**CBK-target**), with DISA (**CBK-DISA**) or using Dynamic routing of calls (**CBK-DCR**)

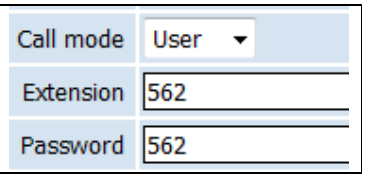
Only the numbers listed in this table can benefit of the callback feature, to prevent abuse!

Target – enter the number of the destination for the incoming call. This must be completed even when you select DCR operation, to serve as a reference value when the dynamic list is empty!



“**Call Mode**” decides how the localuser mobile calls (both incoming and outgoing) will be treated. Trunk mean a usual call, with options Target, DISA or dynamic routing, while User means it will be registered to the IP-PBX as a local user. In this case you must also complete the next two fields, for authentication.

Extension and password – the name of the extension of the IP PBX and its corresponding password. The mobile phone numbers in the list will be registered as extensions of the IP PBX: 441, 562 etc.



6.9.6 Trunk or User?

The trunk option is recommended when VoiBridge Liteis used in a local, private network, which has restricted, controlled access.

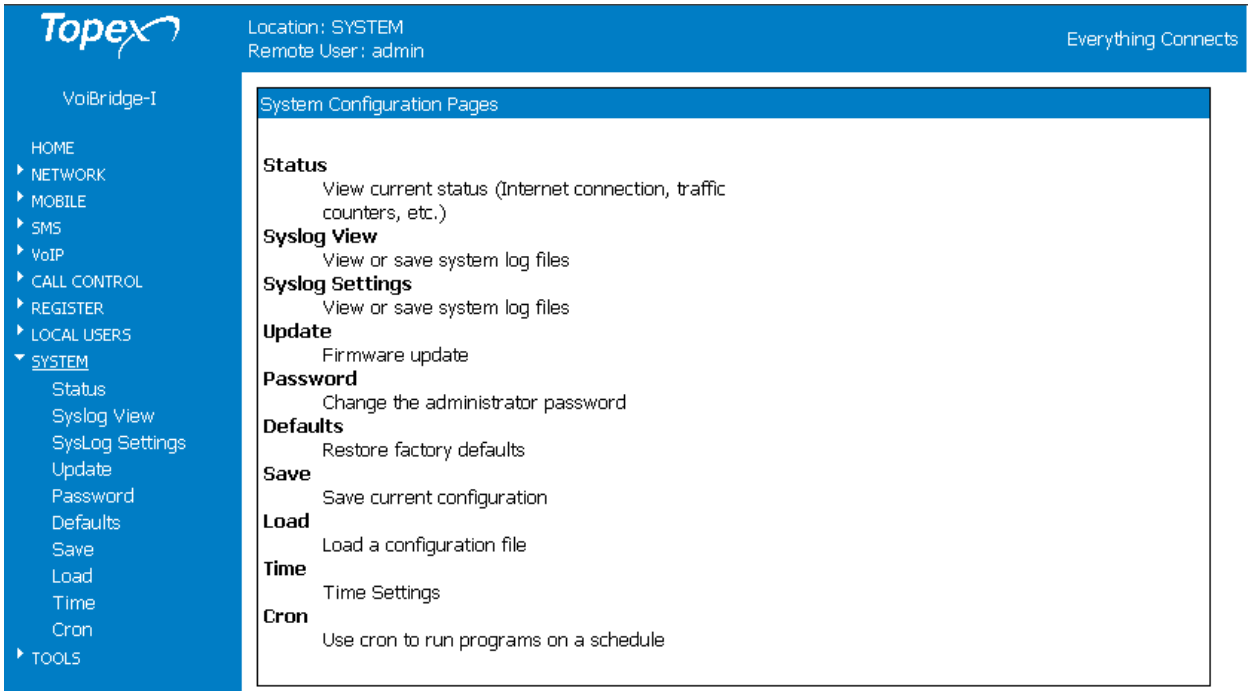
But when the gateway is used at a public Internet address, anyone may get in, so it is very important to restrict the access, to limit those who are able to get in. This is done by authorization with user name and password.

Incoming calls – for users who are registered to the IP-PBX. For those who are not registered, the call cannot proceed. The call gets out with the ID of the user that you have defined.

Outgoing calls – if it is called from another extension of the respective PBX, VoiBridge Litereplaces the call number with the mobile number, then performs an outgoing call using the mobile interface you have selected. It uses the mobile number associated with the respective extension. Please note that the caller from the local PBX does not have to know the mobile phone number, he just rings to the local SIP extension, a number such as 441 or 647 in the previous examples.

6.10 SYSTEM

It shows the current state of the VoiBridge Liteequipment and the logs also allows performing several system-related operations.

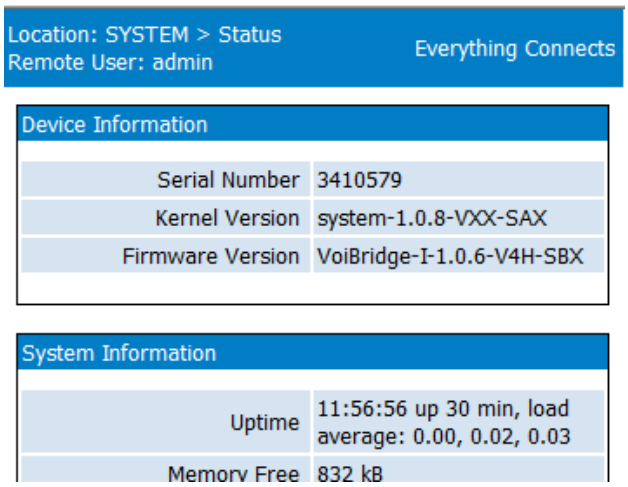


The system configuration pages include these settings:

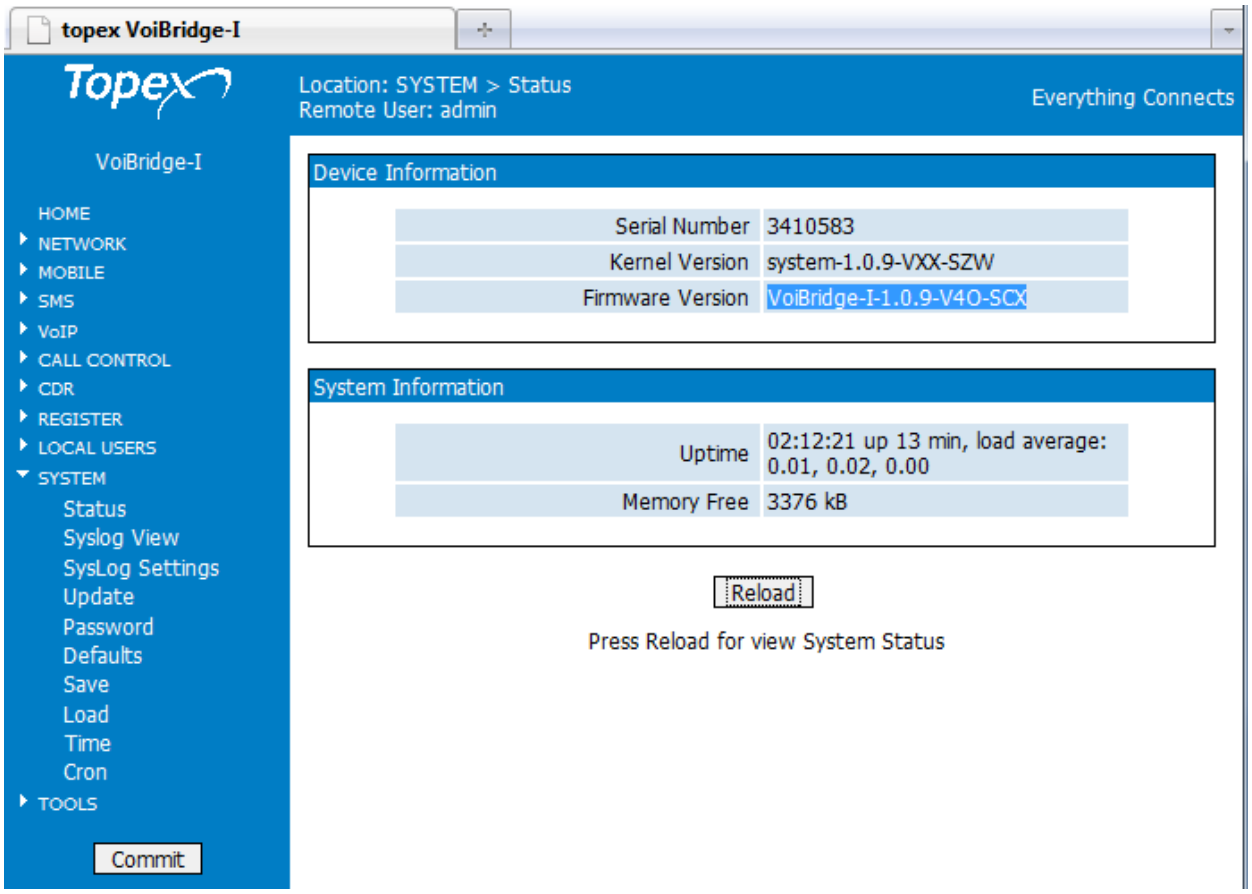
- Status, displays the current status of the VoiBridge Liteequipment
- Syslog View, shows the log file and allows you to save it
- Syslog Settings, settings for the remote log
- Update, you may perform firmware update or upgrade
- Password, allows modification of the password
- Defaults, restores the factory default settings
- Save, saves the current configuration of VoiBridge I4-GSM
- Load, loads a configuration previously stored
- Time, displays and allows you to modify the Local Time of the equipment, in addition to the real Time Clock.
- Cron, programs a time-based job scheduler.

6.10.1 Status

Shows the status of the VoiBridge Litesystem. In some firmware versions, System Status and other special Admin functions may be protected by additional passwords.



or:



This page displays information about the following items:

- Serial Number: each VoiBridge Lite device from Topex has a unique identification number, such as 1110584, 3410583 in the above examples, etc. This is the serial number of the main board of the Topex router.
  According to the requirements of the users, a certain VoiBridge I4-GSM motherboard may be fitted from factory with up to four mobile modems of different types, or other hardware features, but the serial number always remain the same;

Serial Number	1110584
Kernel Version	system-1.0.8-VXX-SAX
Firmware Version	VoiBridge-I-1.0.5-V4O-SCX

- Firmware version: version of the application firmware running on VoiBridge I4-GSM : you may see topex-voibridge-ip-1.0.9-V4P-SCX" or "VoIBridge-I-1.0.5-V4O-xyz". The firmware can be easily updated (a new version) or upgraded (new software features added)
- Kernel version (Operating system version), such as system-1.0.5-xzy" or "system-1.0.8.-VXX" in the example above. The application firmware and the operating system (root or kernel) may be updated separately, according to the requirements of the users.
  The operating system memory is write-protected, thus in case of problems, accidental erasure or power failure during updating, you still have a functional "kernel" allowing you to load a new software image;

- System uptime: time since the last restart of the VoiBridge I4-GSM , both in full format (hours:minutes:seconds) and short format (up 1 minute) "System uptime: 11:41:59 up 4:50";

System uptime: 20:00:46 up 5:25, load average: 12.03, 8.25, 4.77

- Load average: "0.06, 0.04, 0.01" or "load average: 1.50, 1.67, 1.71 " - info about system loading (maximum value / average value / number of active processes)

System Information

Uptime	14:31:44 up 2:00, load average: 0.00, 0.00, 0.00
Memory Free	4672 kB

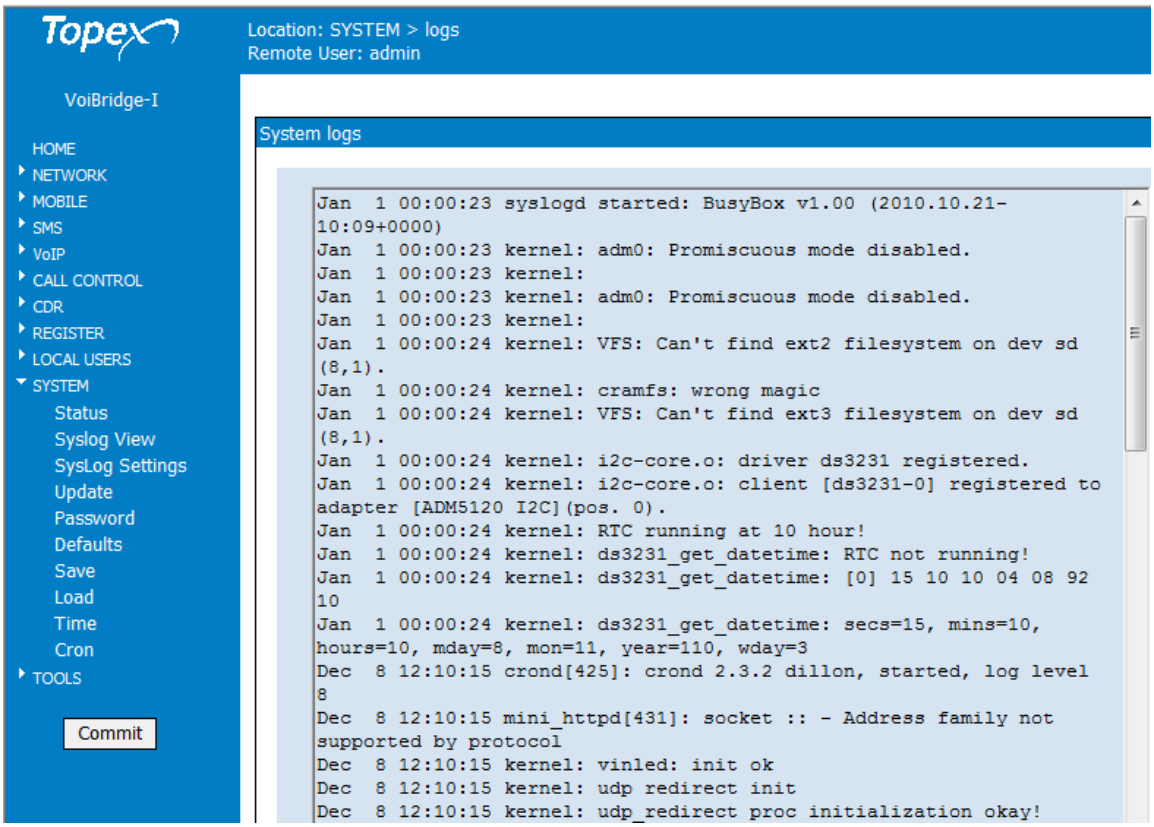
or:

System Information

Uptime	19:07:33 up 18 min, load average: 0.13, 0.07, 0.01
Memory Free	2652 kB

6.10.2 Syslog View

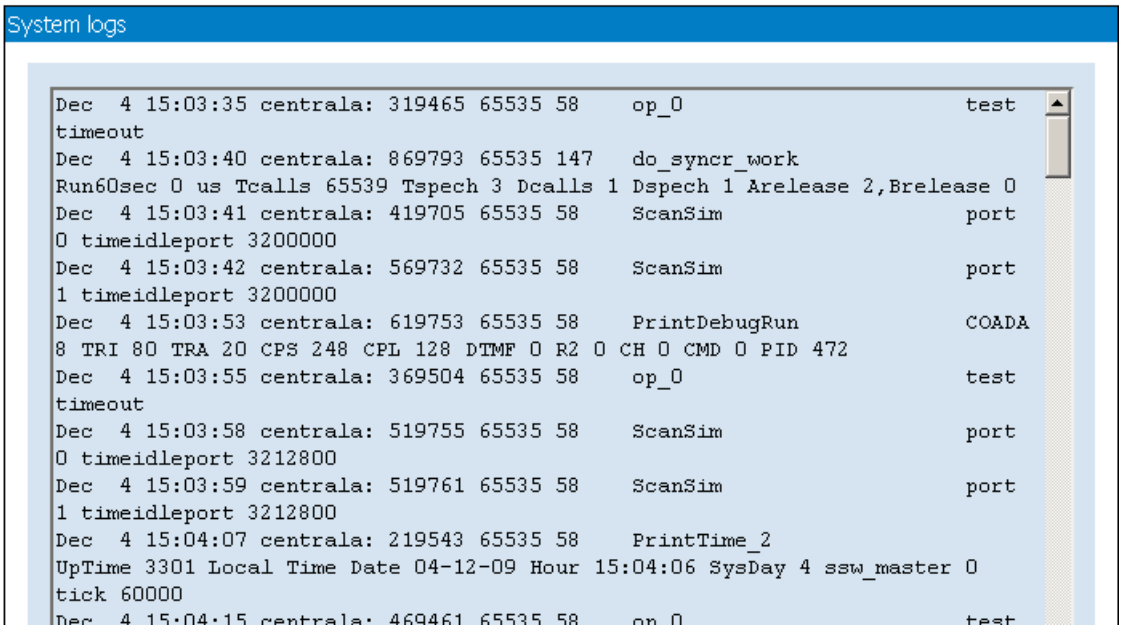
Shows and saves the system log:


Topex
Location: SYSTEM > logs
Remote User: admin
VoiBridge-I
HOME
NETWORK
MOBILE
SMS
VoIP
CALL CONTROL
CDR
REGISTER
LOCAL USERS
SYSTEM
Status
Syslog View
SysLog Settings
Update
Password
Defaults
Save
Load
Time
Cron
TOOLS
Commit
System logs
Jan 1 00:00:23 syslogd started: BusyBox v1.00 (2010.10.21-10:09+0000)
Jan 1 00:00:23 kernel: adm0: Promiscuous mode disabled.
Jan 1 00:00:23 kernel:
Jan 1 00:00:23 kernel: adm0: Promiscuous mode disabled.
Jan 1 00:00:23 kernel:
Jan 1 00:00:24 kernel: VFS: Can't find ext2 filesystem on dev sd(8,1).
Jan 1 00:00:24 kernel: cramfs: wrong magic
Jan 1 00:00:24 kernel: VFS: Can't find ext3 filesystem on dev sd(8,1).
Jan 1 00:00:24 kernel: i2c-core.o: driver ds3231 registered.
Jan 1 00:00:24 kernel: i2c-core.o: client [ds3231-0] registered to adapter [ADM5120 I2C](pos. 0).
Jan 1 00:00:24 kernel: RTC running at 10 hour!
Jan 1 00:00:24 kernel: ds3231_get_datetime: RTC not running!
Jan 1 00:00:24 kernel: ds3231_get_datetime: [0] 15 10 10 04 08 92 10
Jan 1 00:00:24 kernel: ds3231_get_datetime: secs=15, mins=10, hours=10, mday=8, mon=11, year=110, wday=3
Dec 8 12:10:15 crond[425]: crond 2.3.2 dillon, started, log level 8
Dec 8 12:10:15 mini_httpd[431]: socket :: - Address family not supported by protocol
Dec 8 12:10:15 kernel: vinled: init ok
Dec 8 12:10:15 kernel: udp redirect init
Dec 8 12:10:15 kernel: udp_redirect proc initialization okay!

The log is a place where all the applications running on the VoiBridge Lite store their output messages: status reports, confirmation or error messages, activity, etc.

It is a plain text (thus easy to interpret) record of actions taken by the software as it runs on VoiBridge I4-GSM : changes made, devices and drivers detected, files added or deleted, communication with the modem, network settings, etc.

Correspondingly, records of the kernel or of the user info, debug messages, info or warnings can be seen in the log:

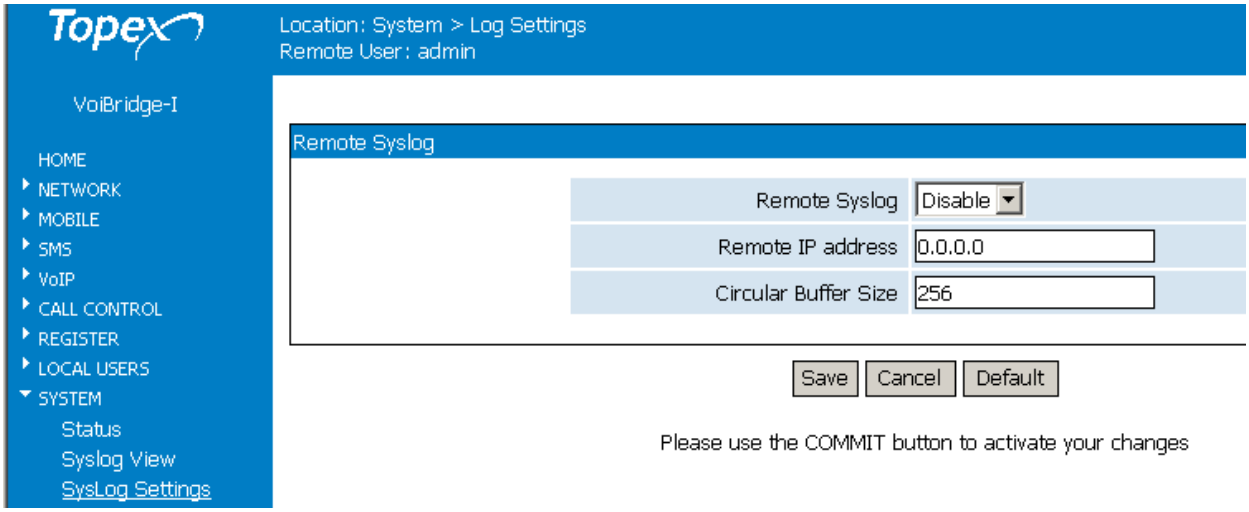

System logs
Dec 4 15:03:35 centrala: 319465 65535 58 op_0 test timeout
Dec 4 15:03:40 centrala: 869793 65535 147 do_syncr_work Run60sec 0 us Tcalls 65539 Tspech 3 Dcalls 1 Dspech 1 Arelease 2,Brelease 0
Dec 4 15:03:41 centrala: 419705 65535 58 ScanSim port 0 timeidleport 3200000
Dec 4 15:03:42 centrala: 569732 65535 58 ScanSim port 1 timeidleport 3200000
Dec 4 15:03:53 centrala: 619753 65535 58 PrintDebugRun COADA 8 TRI 80 TRA 20 CPS 248 CPL 128 DTMF 0 R2 0 CH 0 CMD 0 PID 472
Dec 4 15:03:55 centrala: 369504 65535 58 op_0 test timeout
Dec 4 15:03:58 centrala: 519755 65535 58 ScanSim port 0 timeidleport 3212800
Dec 4 15:03:59 centrala: 519761 65535 58 ScanSim port 1 timeidleport 3212800
Dec 4 15:04:07 centrala: 219543 65535 58 PrintTime_2 UpTime 3301 Local Time Date 04-12-09 Hour 15:04:06 SysDay 4 ssw_master 0 tick 60000

The log is very helpful when troubleshooting. It may be saved on a PC (simply use “Save As” option of your browser) for further examination.
Use the button “Reload” located at the bottom of the Syslog window to save the current log and refresh the display:

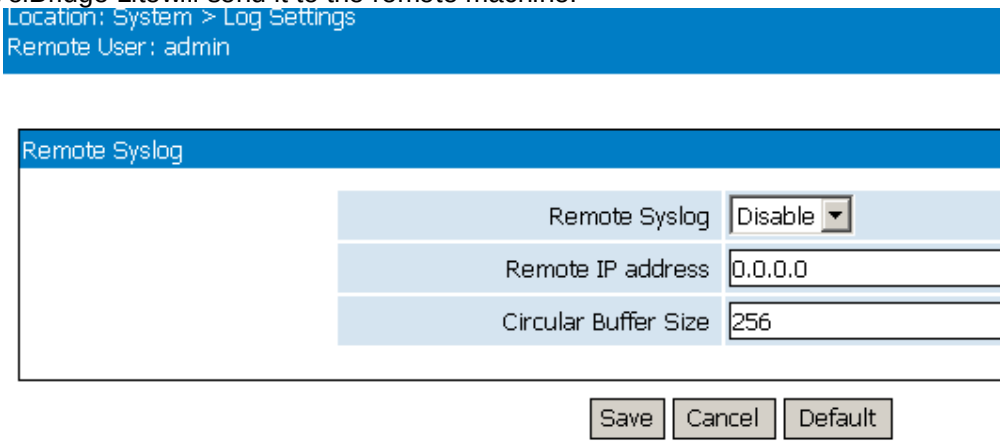
Dec 8 12:10:36 bytmspd: chipvin.c: - EDSP vers: 0x 11
Dec 8 12:10:36 bytmspd: chipvin.c: - EDSP Int: 0x 40
Dec 8 12:10:36 bytmspd: comcen.c: Init server at Port 9677
Dec 8 12:10:36 bytmspd: comcen.c: Server accept is OK !
Dec 8 12:10:39 /mnt/app/bin/cenq: Command: register users
Dec 8 12:10:44 /mnt/app/bin/cenq: Command: sip online
Dec 8 12:15:51 /mnt/app/bin/cenq: Command: sip online
Dec 8 12:15:54 /mnt/app/bin/cenq: Command: register users
Dec 8 12:20:04 /mnt/app/bin/cenq: Command: help
Dec 8 12:20:21 /mnt/app/bin/cenq: Command: view ports
Dec 8 12:21:25 /mnt/app/bin/cenq: Command: list
Dec 8 12:21:37 /mnt/app/bin/gsmq: Command to gsm32: ati
Dec 8 12:21:37 /mnt/app/bin/gsmq: GSM32 is NO MONI
Dec 8 12:21:43 /mnt/app/bin/gsmq: Command to gsm33: ati
Dec 8 12:21:43 /mnt/app/bin/gsmq: OK
Reload
Press Reload for view syslog

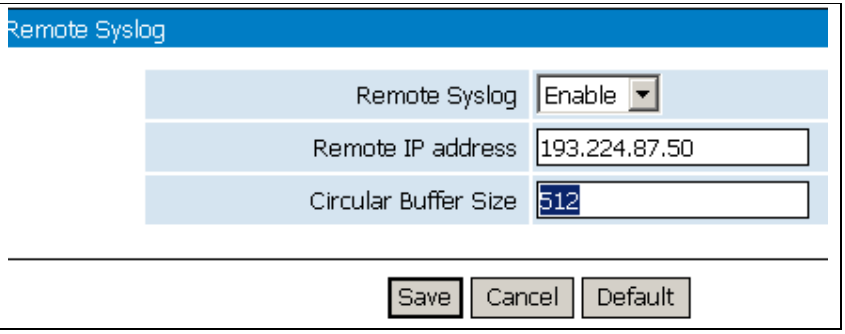
6.10.3 Syslog Settings

You can change the settings for the remote system log:



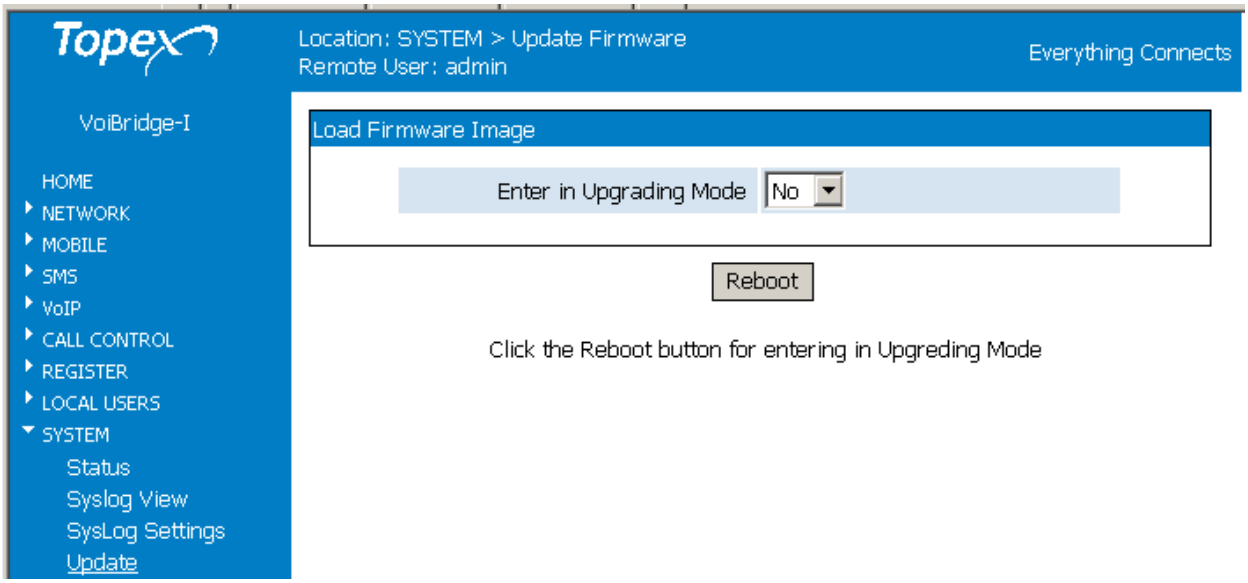
By default, the remote log is **disabled**. If you select Enable and enter a valid IP, instead of showing the log file locally, VoiBridge Litewill send it to the remote machine.



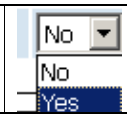
Here you can also establish the size of the circular buffer that temporary stores the log, the default value is 256.	

6.10.4 Update Firmware

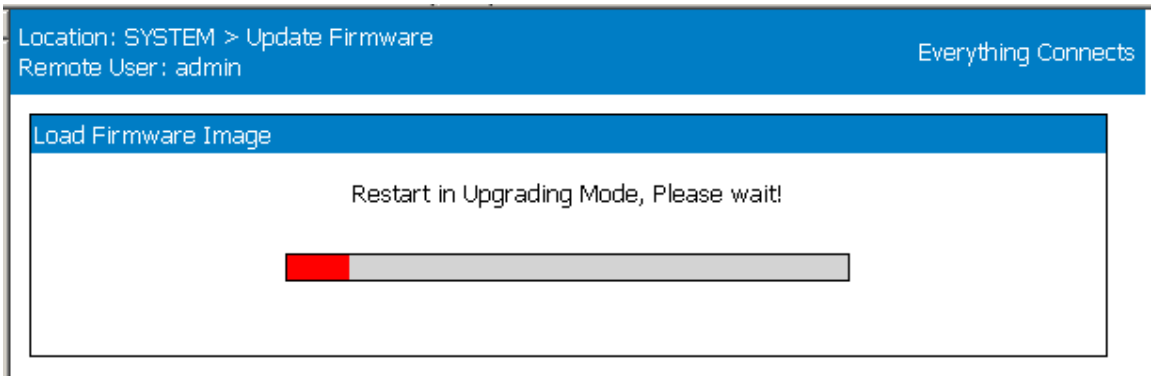
Allows you to perform an update or upgrade of the firmware running on the VoiBridge I4-GSM.



The webpage displays a single field, "**Enter in Upgrading Mode No/Yes**".

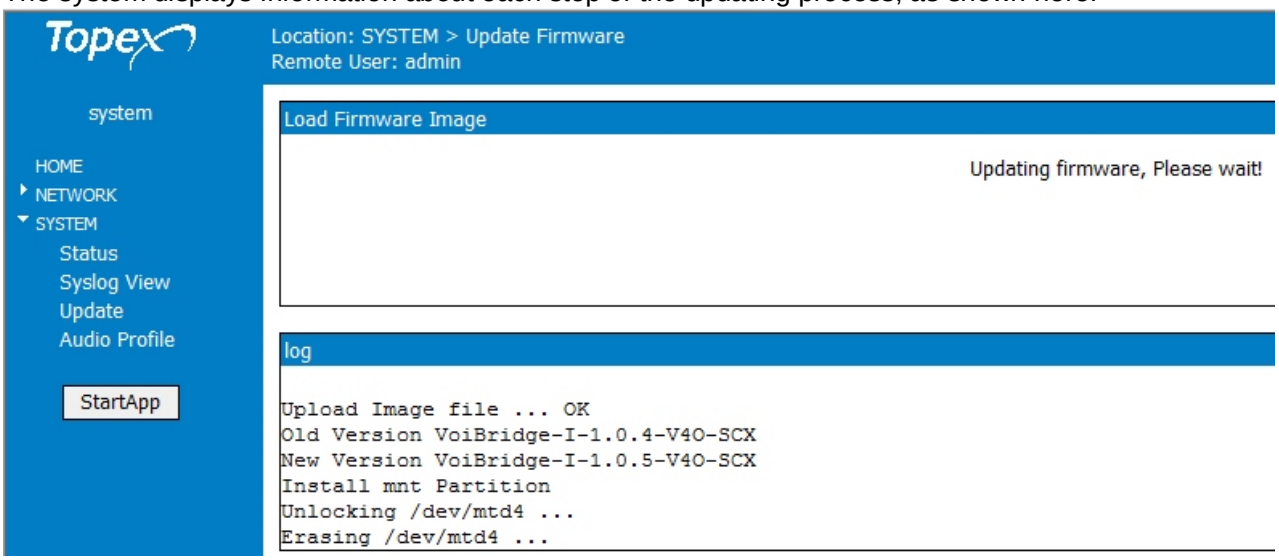
As you can see, the default is No, to prevent accidentally going to the mode of operation "Upgrade". If you do want to perform a software upgrade, select YES from the drop list, then click the button "Reboot".	

The screen will display the message "Restart in Upgrading Mode, Please wait!" and below it you will se a progress bar:



VoiBridge Lite will shut down and restart in Upgrading Mode. This special mode of operation frees up the memory of the equipment for the new firmware, allowing you to perform software upgrade easily and safely.

The system displays information about each step of the updating process, as shown here:

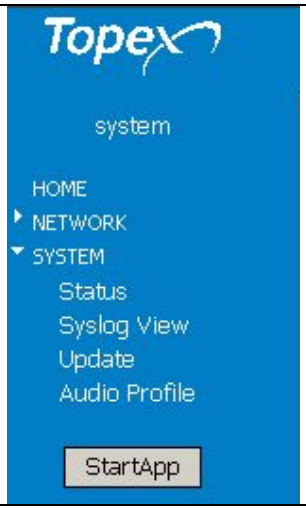


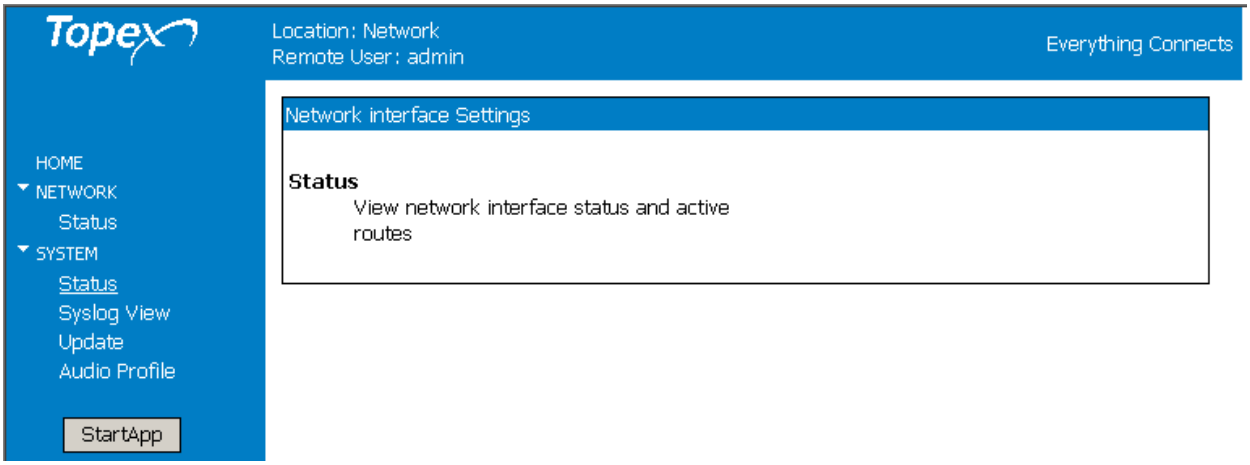
During the updating process, VoiBridge Liteis not available for routing VoIP and mobile calls.

Also, if an error occurs during software update and the image file gets corrupted, the equipment will restart in System mode, allowing you to load a good software image.

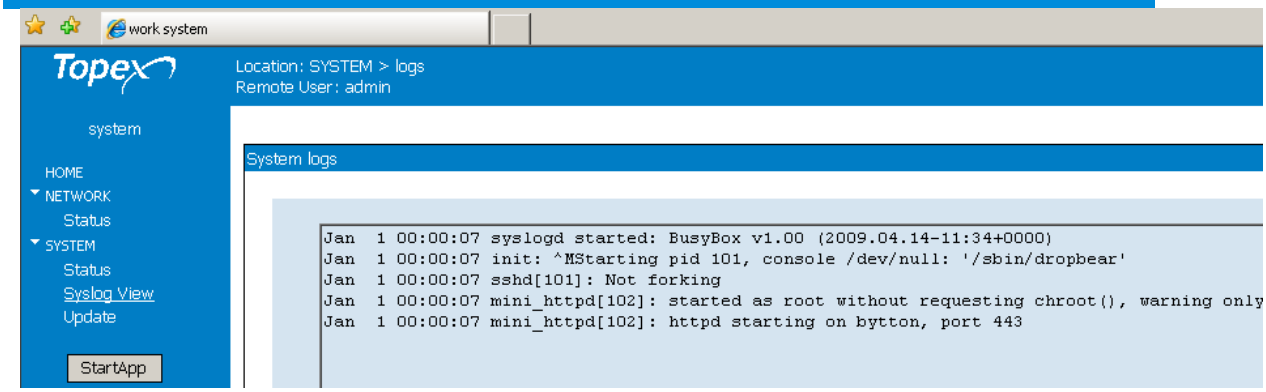
The **Upgrade** configuration page is simplified, containing just a few elements – VoiBridge Liteis operating in System (Kernel) mode only.

There are only two pages available, NETWORK and SYSTEM.



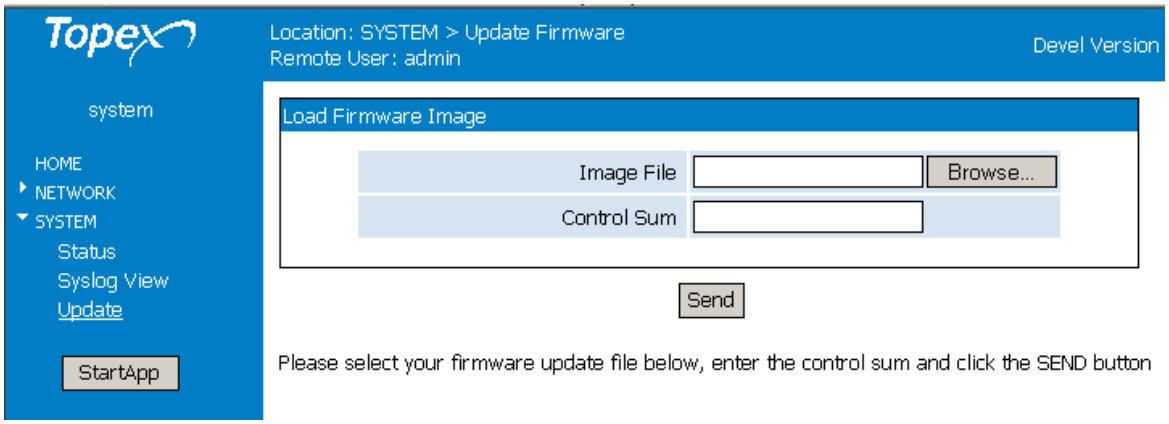


Network shows the state of the network, you can't perform changes. In System, you can both see the state of the equipment, or look at the logs, as shown below in the page "Syslog View":



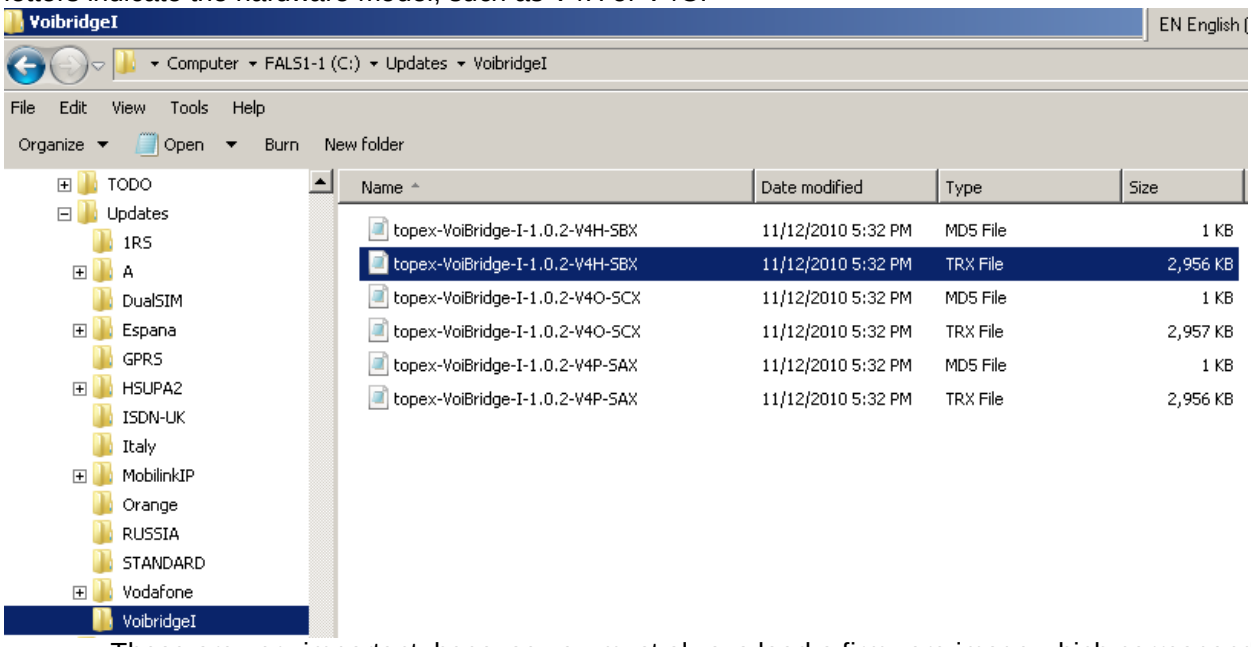
But you can also perform a firmware update!

To perform an update, go to **SYSTEM>Update** as shown in the next image:



The update (firmware image) must be on the PC. The image files are binaries that have the extension "trx".

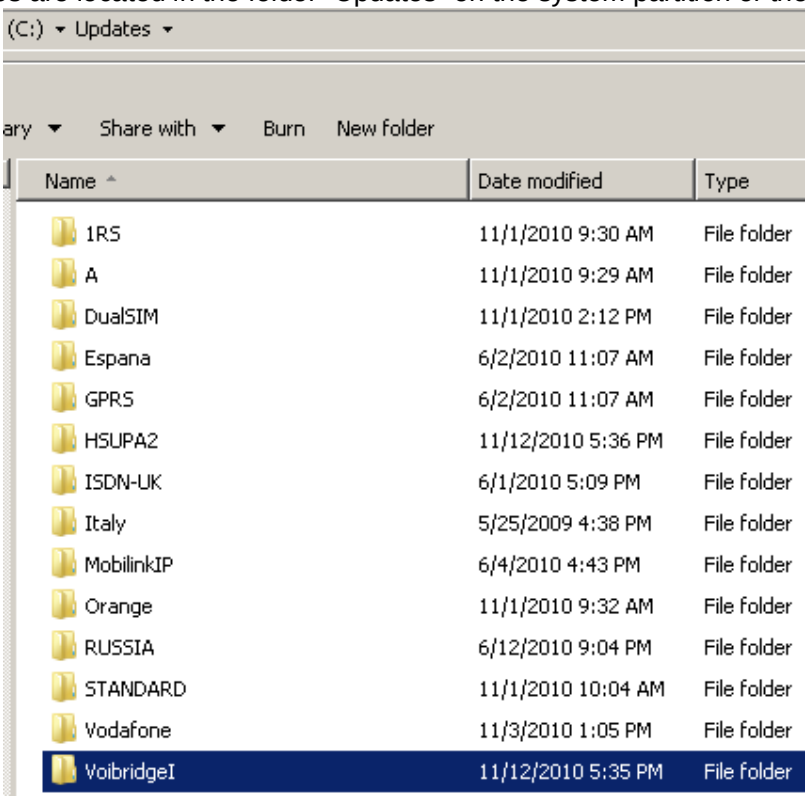
One may download the image files from the TOPEX website. The update files are called "topex-equipment-1.2.3- x.y.z-P.trx", where "equipment" is the name of the device, such as <<VoIBridgeI4-ip>>, in the case of VoIBridgeI4 IP, and 1.2.3. is the version number, for instance 1.0.3 or 1.0.6. The next three letters indicate the hardware model, such as V4H or V4O:



These are very important, because you must always load a firmware image which corresponds to the type of your equipment – when you have a "V4H" box, *you must update with an image type V4H, and not V2H or V4P!*

The three letters at the end, such as SBX or SCX define the software version.

Enter the name of the update or click Browse to search for it on the system. In the example below, the image files are located in the folder “Updates” on the system partition of the hard disk drive, C:

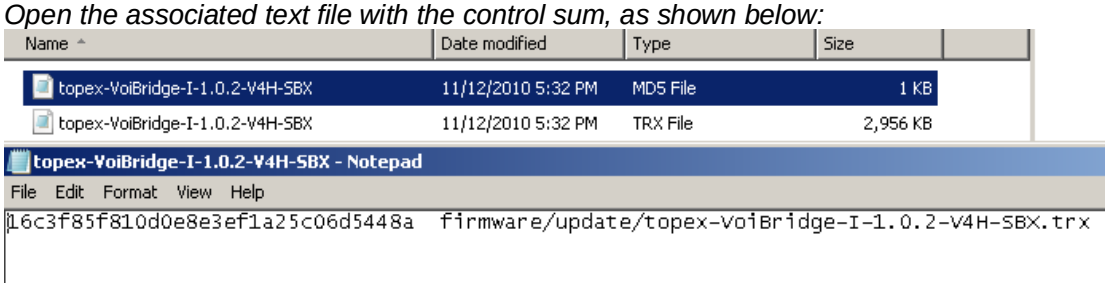

(C:) ▸ Updates ▸
ary ▾ Share with ▾ Burn New folder
Name
Date modified
Type
1RS 11/1/2010 9:30 AM File folder
A 11/1/2010 9:29 AM File folder
DualSIM 11/1/2010 2:12 PM File folder
Espana 6/2/2010 11:07 AM File folder
GPRS 6/2/2010 11:07 AM File folder
HSUPA2 11/12/2010 5:36 PM File folder
ISDN-UK 6/1/2010 5:09 PM File folder
Italy 5/25/2009 4:38 PM File folder
MobilinkIP 6/4/2010 4:43 PM File folder
Orange 11/1/2010 9:32 AM File folder
RUSSIA 6/12/2010 9:04 PM File folder
STANDARD 11/1/2010 10:04 AM File folder
Vodafone 11/3/2010 1:05 PM File folder
VoibridgeI 11/12/2010 5:35 PM File folder

Select the sub-folder for VoIBridgeI4 GSM, choose the file needed and click Open.

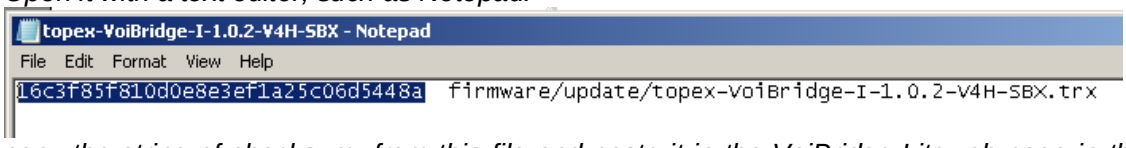
Note:

*Each firmware file has an associated **Control Sum.** The control sum is a string of hexadecimal figures, such as “f2209c63972be34f55d4e69d90042d93” and it is stored in a text file (with .txt extension), with the same name as the firmware image. Using a control sum prevents the user from loading a corrupted image.*

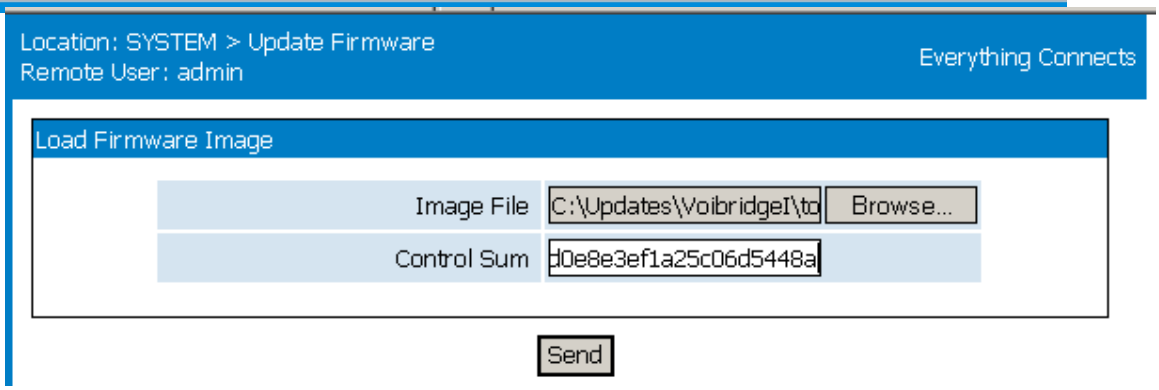
Open the associated text file with the control sum, as shown below:



Open it with a text editor, such as Notepad:

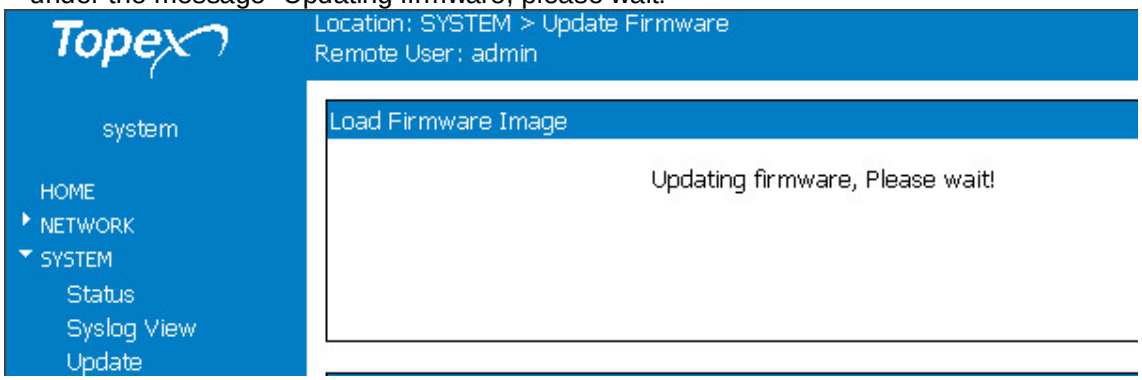


copy the string of checksum from this file and paste it in the VoiBridge Liteweb-page in the field named “Control Sum:



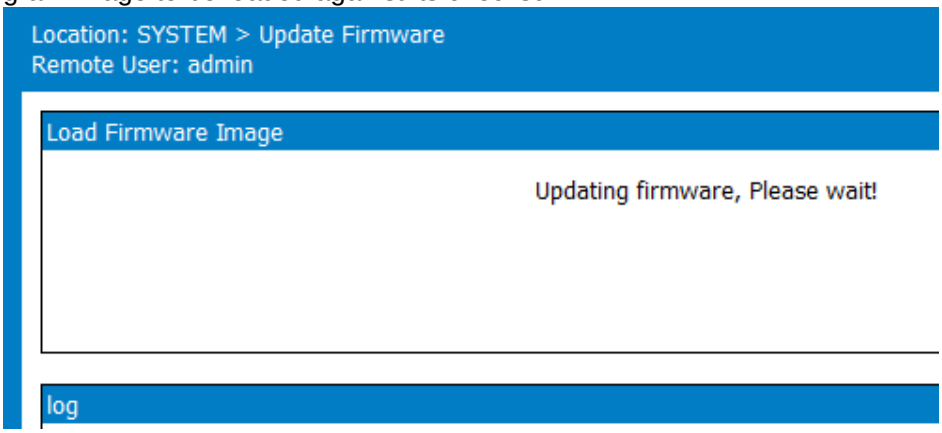
Finally, click the "Send" button to perform the update

A "Firmware Update" window shows up, where progress can be seen with a progress indicator under the message "Updating firmware, please wait!"



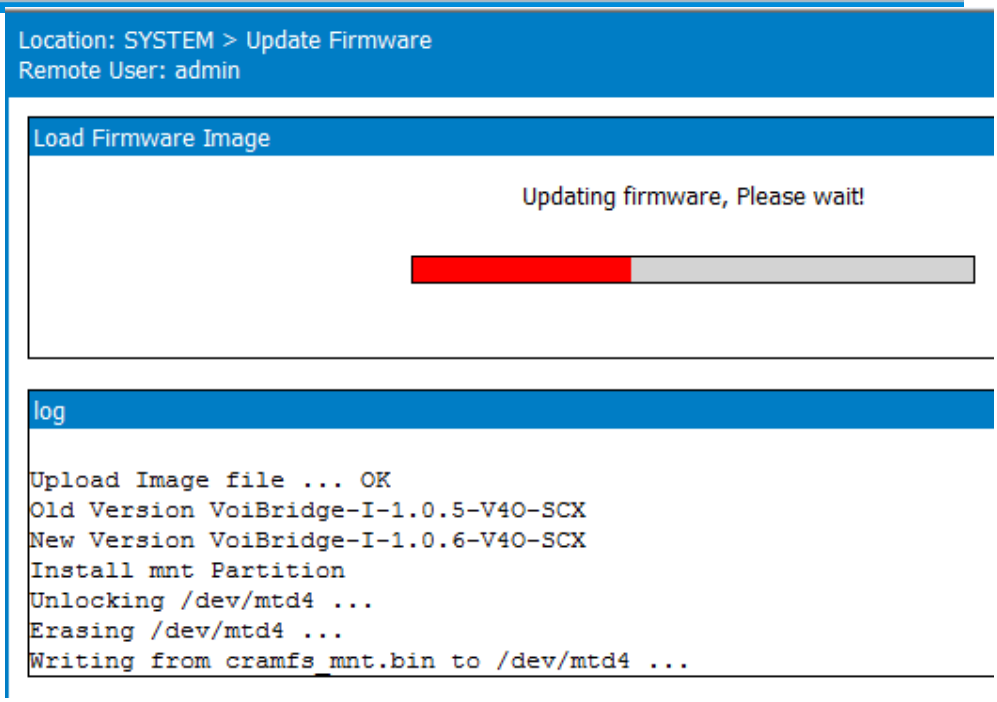
Note that there are **two** distinct, successive phases of updating the firmware image:

- in the first one, while the message "Updating firmware" is blinking, the equipment just checks the program image to be loaded against its checksum.



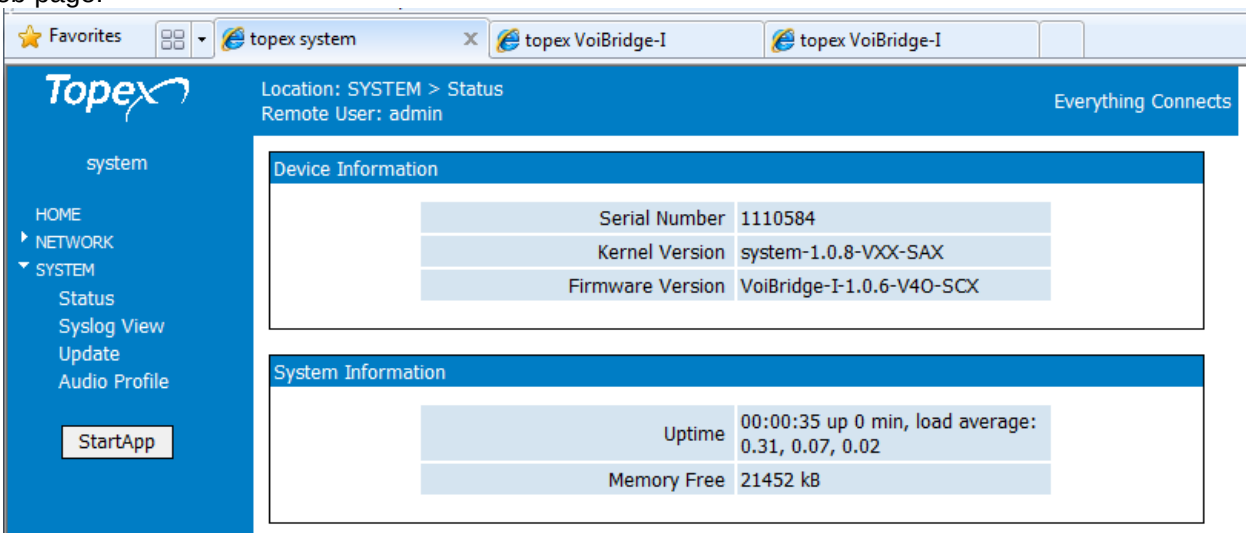
Upload Image file ... OK
Old Version VoiBridge-I-1.0.5-V4O-SCX
New Version VoiBridge-I-1.0.6-V4O-SCX
Install mnt Partition
Unlocking /dev/mtd4 ...
Erasing /dev/mtd4 ...
Writing from cramfs_mnt.bin to /dev/mtd4 ...

- only if the result of the verification is OK, the VoiBridge Lite device goes to the second phase where it actually loads the new firmware into its Flash memory.



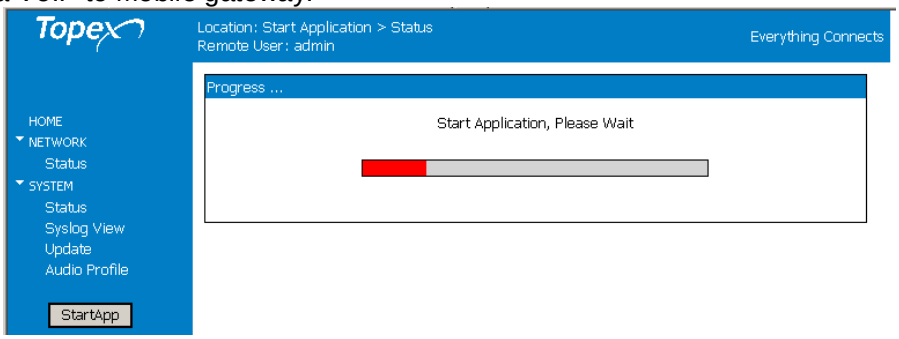
The update log shows every step of the update process.
Among other information, it displays the previous firmware version and the new one, such as 1.0.5 and respectively 1.0.6 in this case:

After the loading of the new firmware is completed, you can restart the VoiBridge Liteequipment to start it operating with the new software.
For this, you may use the "**StartApp**" button located at the button of the system menu, at the left of the web page.



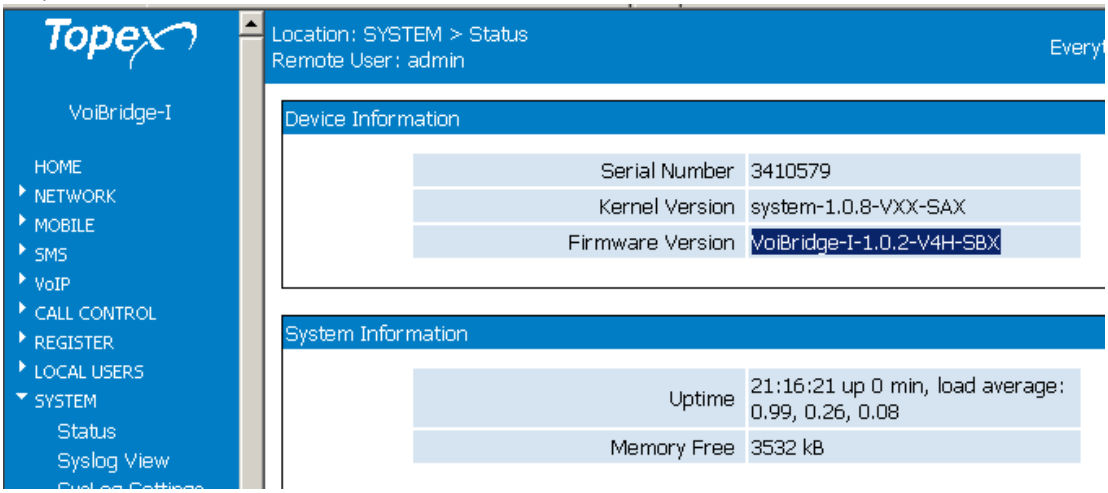
As an alternative, you can perform a hardware "Return to factory defaults" by keeping the RST button pressed when you power up the equipment.

Pressing the button will start up the main application software running on VoIBridge-I4, which allows it to perform as a VoIP to Mobile gateway:

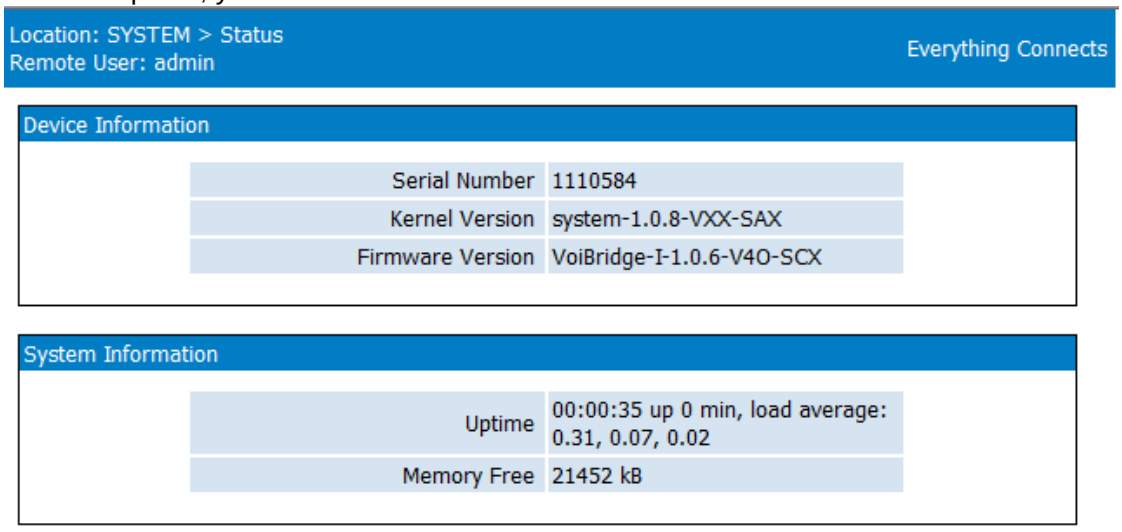


To verify the updating of the firmware, you can compare the System Status screen before and after loading the software image:

Before, the software version was 1.0.2:



After successful update, you can see the version is now 1.0.6:



Warning: *Do not update the firmware unless there are problems with the VoiBridge I gateway or the new firmware has a feature that you need. Remember to backup the current configuration first. Be careful when loading an update file. If selecting a wrong file, or if for different reasons firmware upgrading fails, the equipment may no longer operate correctly. A special firmware restore will have to be performed.*

To avoid this, follow the rules carefully:

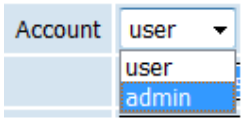
- don't turn off the VoiBridge Liteequipment or the computer while the firmware is being overwritten;
- remember the equipment does not work while firmware update is in progress;
- after successful updating, verify the upgraded firmware;
- remember that updating the firmware on the VoiBridge Litecould cause some or all of the configuration settings to be lost, depending on the degree of change in the firmware.

Therefore it is highly recommended to **save** the current configuration before updating, and then restore it. To backup the settings, perform a Save, update the firmware, and then load the saved settings, after having the equipment operating with the updated firmware.

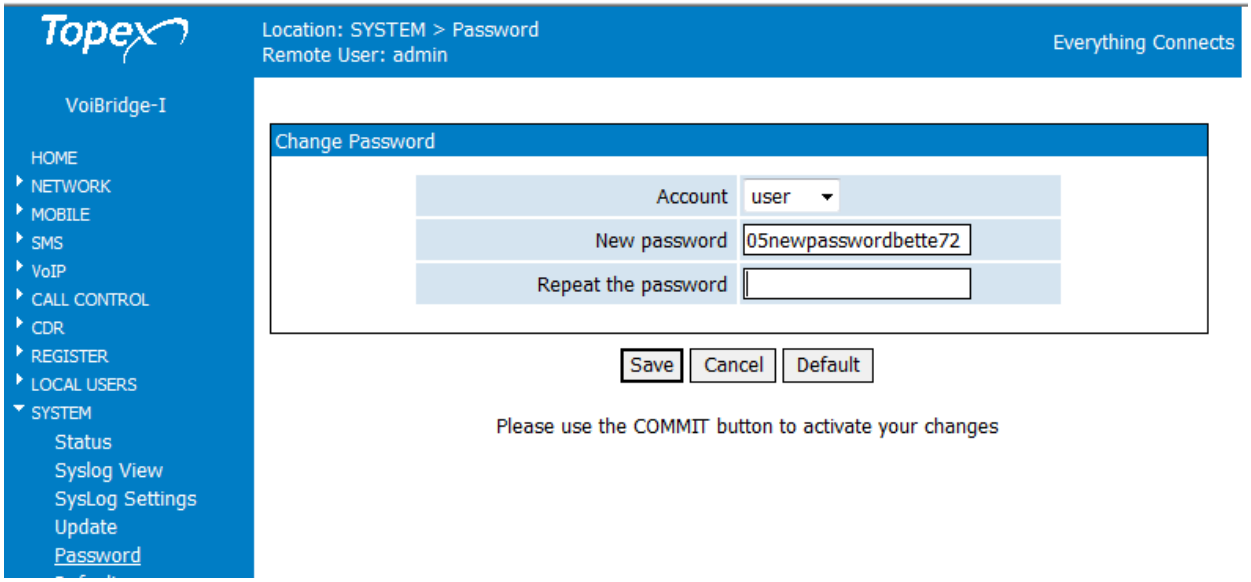
6.10.5 Password Change

Allows the modification of passwords for the log-in accounts, in this case "admin".

First of all, use the "Account" drop list to choose for which account do you want to change the password, for user (who has access only to the SMS page) or for admin, the Administrator account.



For changing the "admin" account password, the user must be logged in as admin.
Type the new password and enter it again on the second row to confirm it.



"Save" saves the new password.

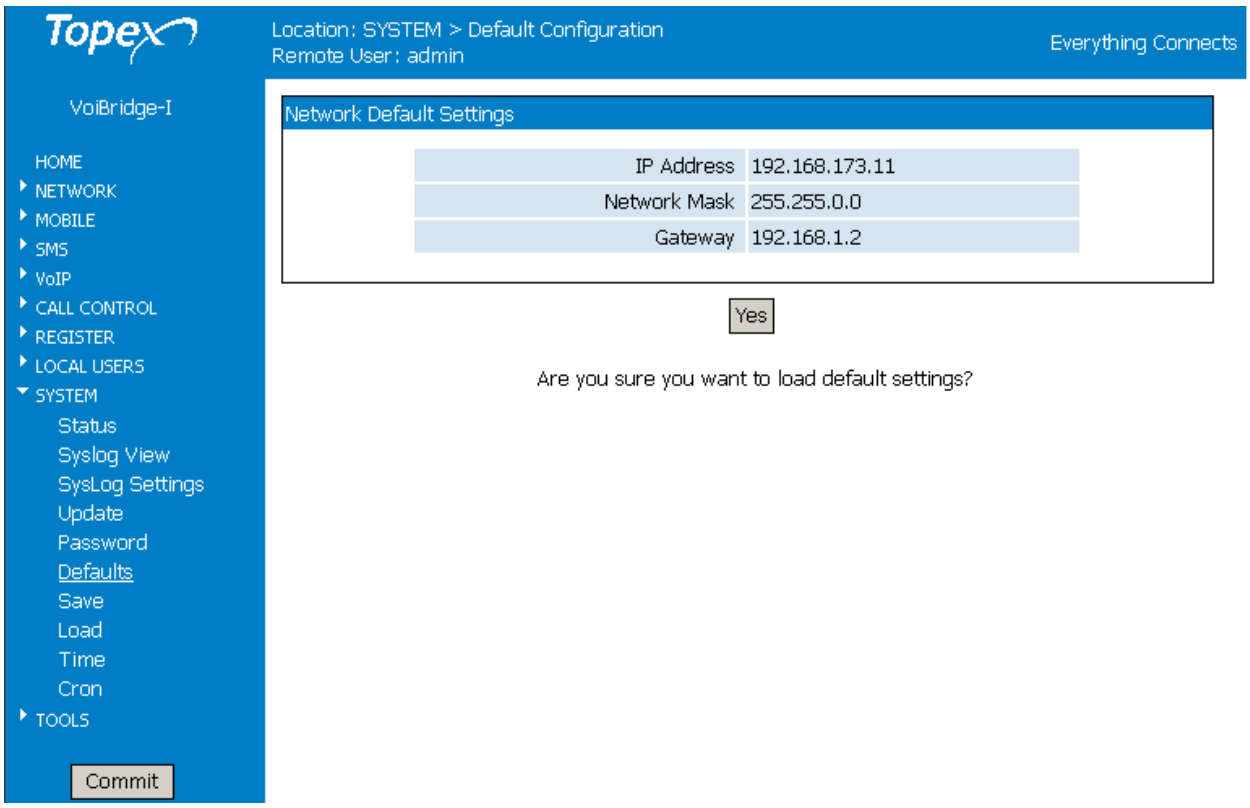
Replace the default passwords for user (99user11) and respectively Administrator (99admin11) with speciffic (of your own) as soon as possible.

Please choose a password with a **minimum** of six characters. In order to effectively prevent unauthorized access, the password must be long enough and include both letters and numbers.
Note that the password is **case-sensitive**.

6.10.6 Default Configuration

This option restores **all** the system settings to factory defaults.
You can also click Default on each page to reset the respective parameters to default, but this function restores the whole device to factory default at once.

When selecting “Defaults”, a window shows up, displaying the default settings for the local network and asking you for confirmation - “Are you sure?”



The “Network Default Settings” are displayed because they are the most important – if you do not know the IP address of VoiBridge Litein the local network, you cannot connect to it in order to manage it!
If wanting to proceed, click the YES button and the equipment will revert to the factory default settings.
Following a reset, it will start operating with the factory default values for all parameters.
During the process, “Updating settings, please wait!” and a red progress bar, can be seen as shown below:

CAUTION!
Use this option carefully. During the process, the VoiBridge Litewill not be available for VoIP, call routing and connecting to the mobile network. For a few moments, the LAN icon in the status bar will be barred with a red "x" and the message "A network cable is unplugged" will show up, indicating that VoiBridge Liteis unavailable.

Hardware factory defaults

"Return to Defaults" can also be performed via **hardware**. This means the Web interface doesn't have to be used.

For this, perform the Hardware reset described previously.

Remember, you must follow exactly the procedure described next, simply pressing the recessed RST button won't work. So you must follow these steps:

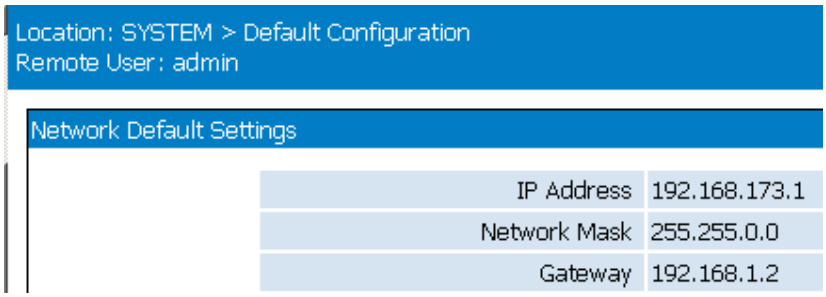
- shut down the VoiBridge Litedevice (unplug the power jack)
- press the RST button and keep it pressed
- power up VoiBridge I4-GSM
- wait until all three LEDs light up (in green, yellow and red), then leave the RST button.

Now the equipment performs a reset with return to factory default settings. This does NOT happed if you don't follow exactly the procedure described above – for instance, if you continue to press RST after the three indicators have turned on in red color!

This way of restoring the factory default settings is faster than using the web interface, but the same care should be exercised.

Note: T*he "Return to Defaults" option is quite useful when incorrect settings have been performed or when the IP of the VoiBridge Litedevice are forgotten. If not having the IP address or if having incorrect settings for iptables, one won't be able to connect to the VoIP4Mobile to administer it. Perform a hardware "factory defaults", and VoiBridge Litewill revert to its original settings, including the IP address of 192.168.173.1.*

Reminder for "Network Default Settings"

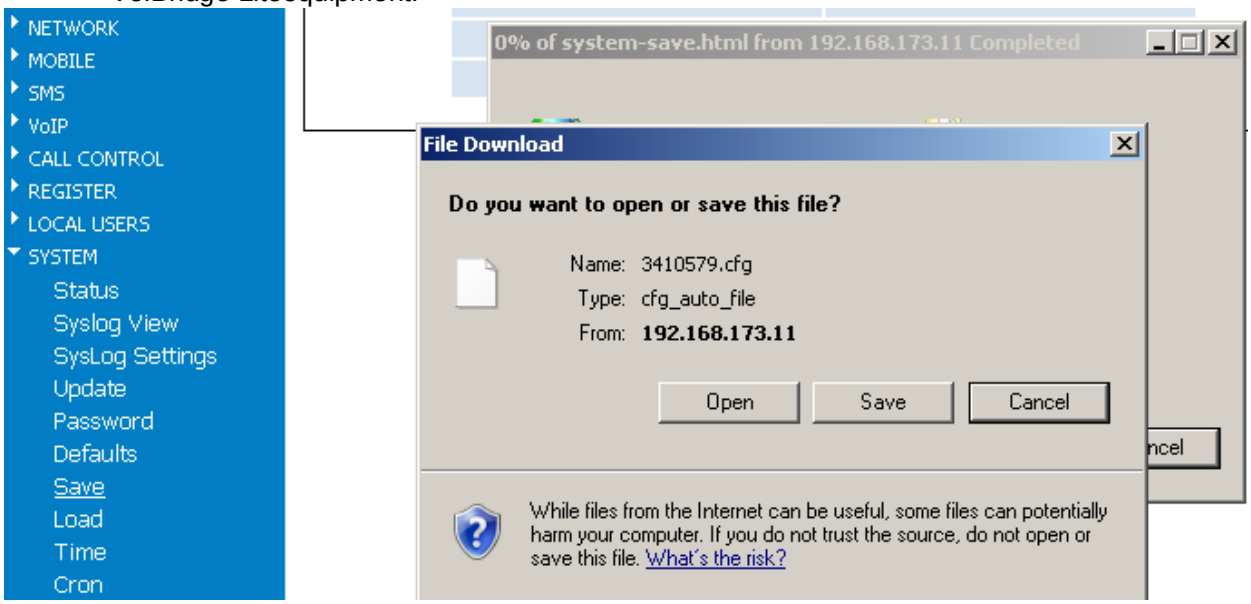


As you can see, the **Defaults** page reminds you which are the default settings for Network, so you know exactly where to connect to following a "restore default configuration".

For this class of Topex equipments, the default IP address is 192.168.173.1, with the net mask 255.255.0.0, and the gateway is 192.168.1.2. The connection type is **https**!

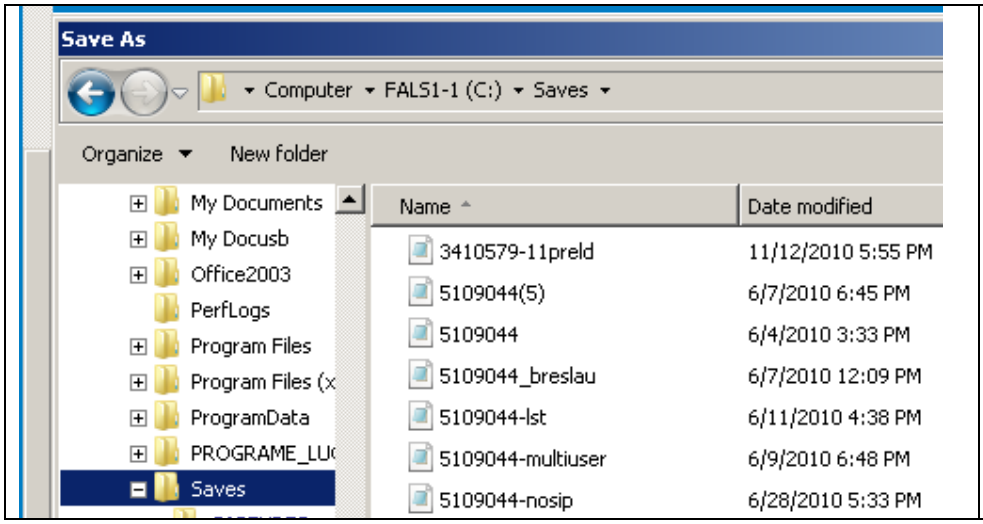
6.10.7 Save

The “Save” option makes a backup copy of the current configuration (all the settings made) of the VoiBridge Liteequipment.



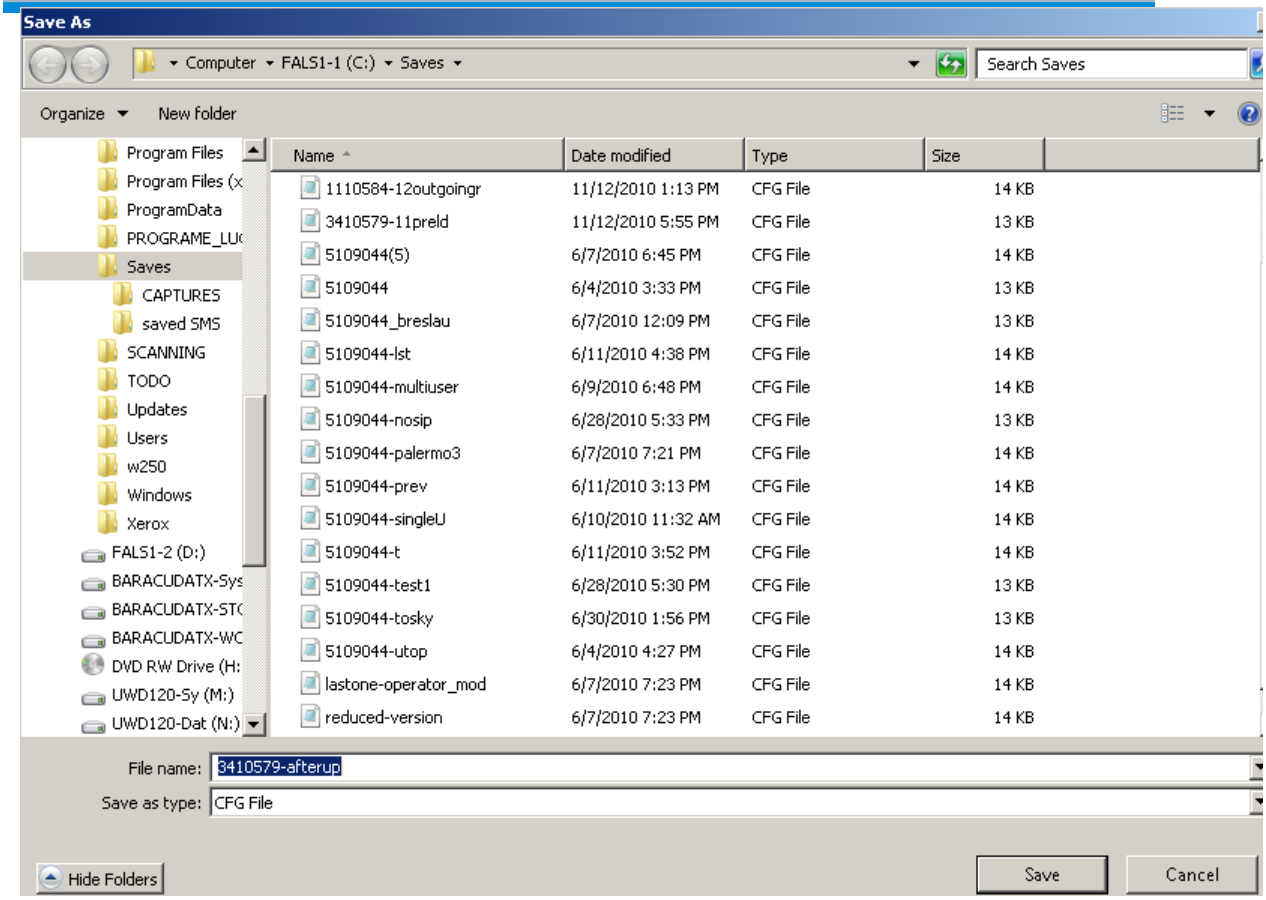
The configuration file is called “**serialnumber.cfg**” by default. It is the serial number of the motherboard of the respective VoiBridge Liteunit, which is **3410579** in this case.

A message similar to the example above will be shown, asking you what to do with the file.



Click “Save” or select “Save it to disk” to save the file with the current configuration of the VoiBridge I4-GSM

One may select the folder where the configuration will be saved, such as “Saves” on hard disk partition C; also, one should change the default name “xxxxxxxxx,cng” into a name meaningful for the actual configuration.

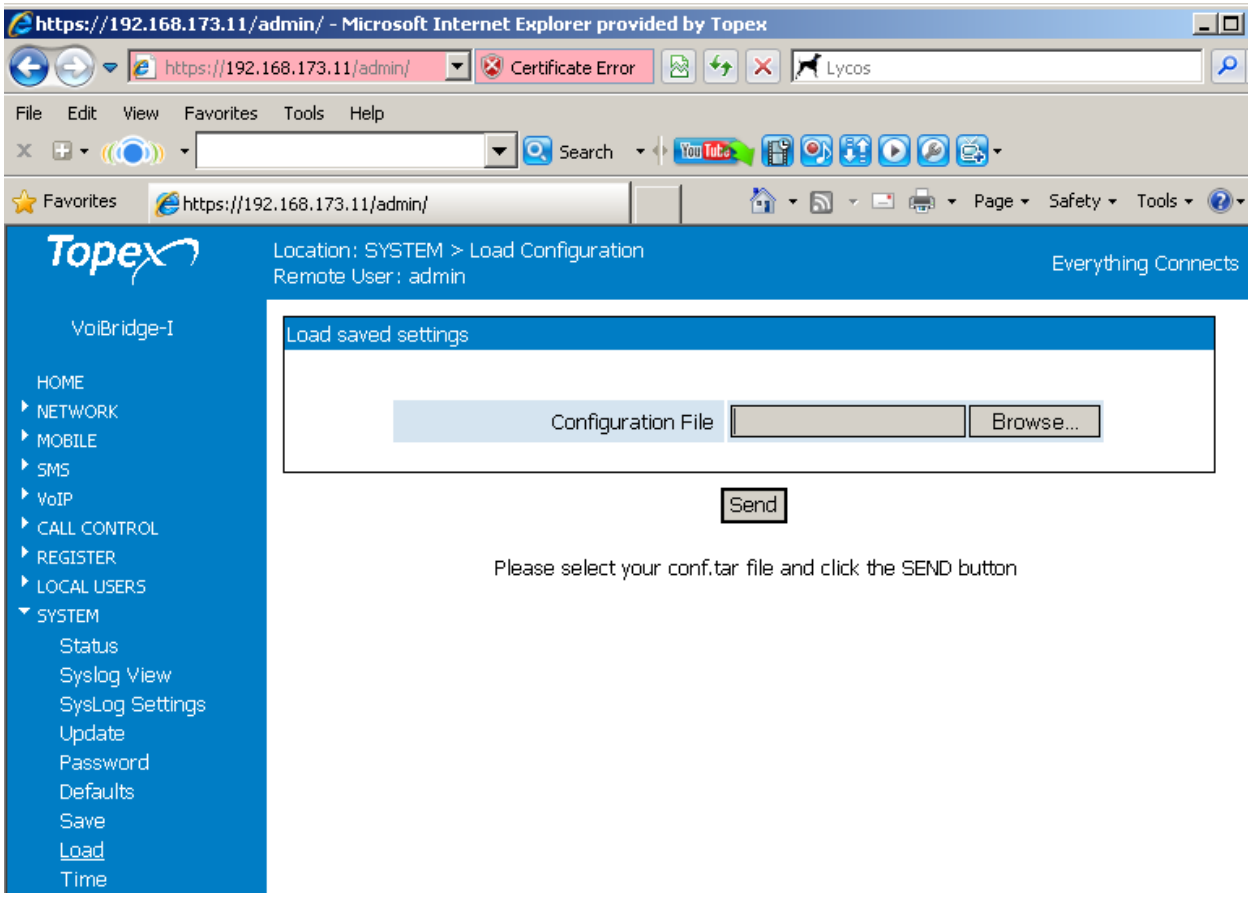


Note: *It is highly recommended to backup the configuration from time to time. This way the user can always load the saved configuration, if there is need. For instance, when performing a "Restore to factory defaults", all previous settings are lost. If the configuration was saved, it can be loaded back to perform changes.*

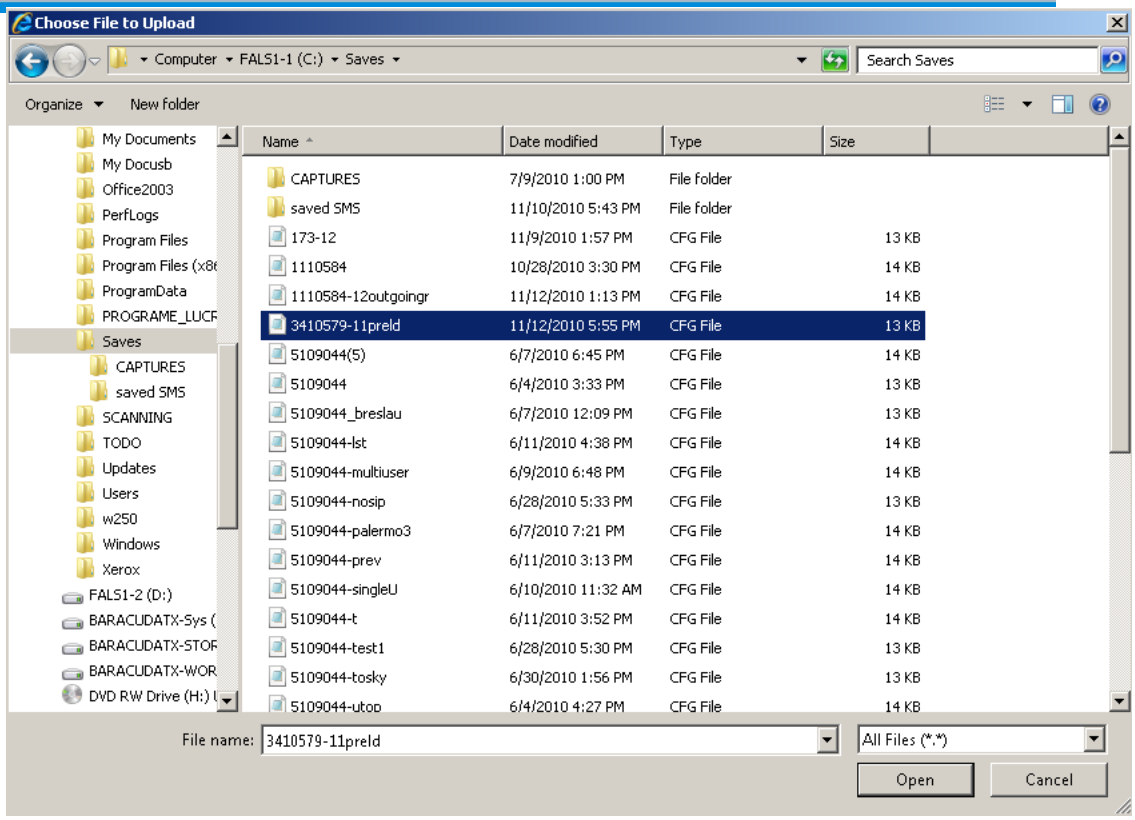
Also, one should perform a "Save" before using "Update" to load a new software image, since the new firmware could erase some of the settings.
This is especially useful when having configured many particular settings, for example related to routing rules or to SIP and mobile users – it will take a long time to edit these specific settings by hand.

6.10.8 Load saved settings

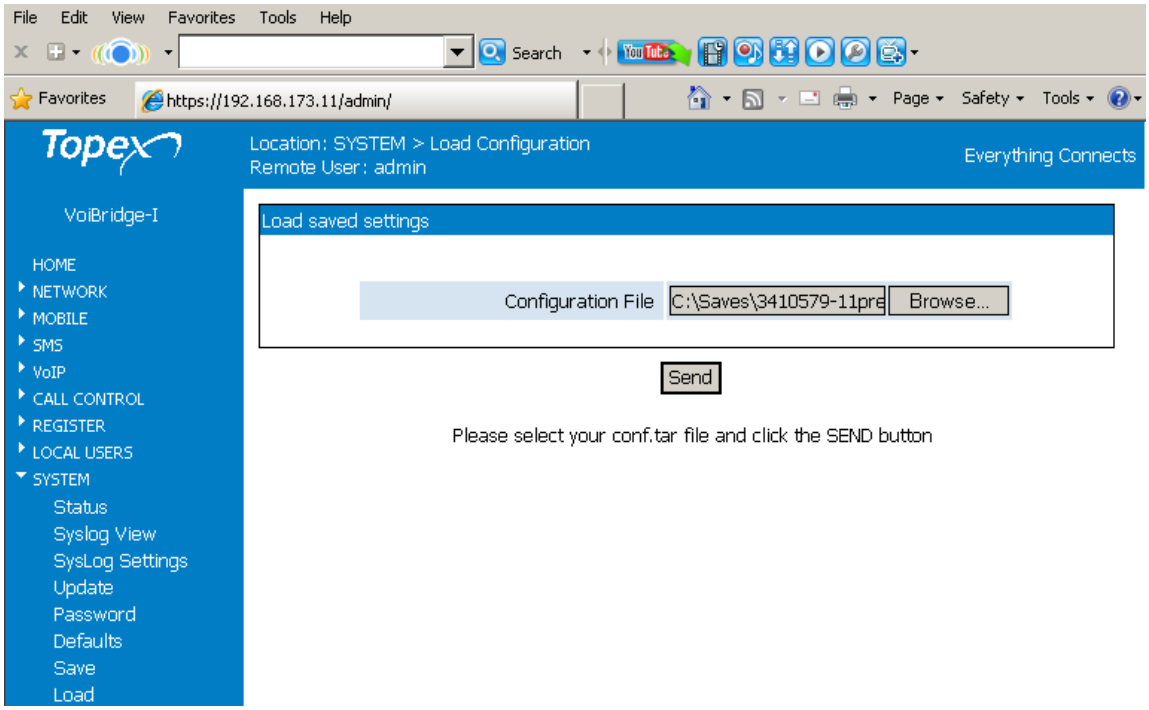
It loads a configuration file that has been saved previously or restores a backup. It is the operation complimentary to “Save”:



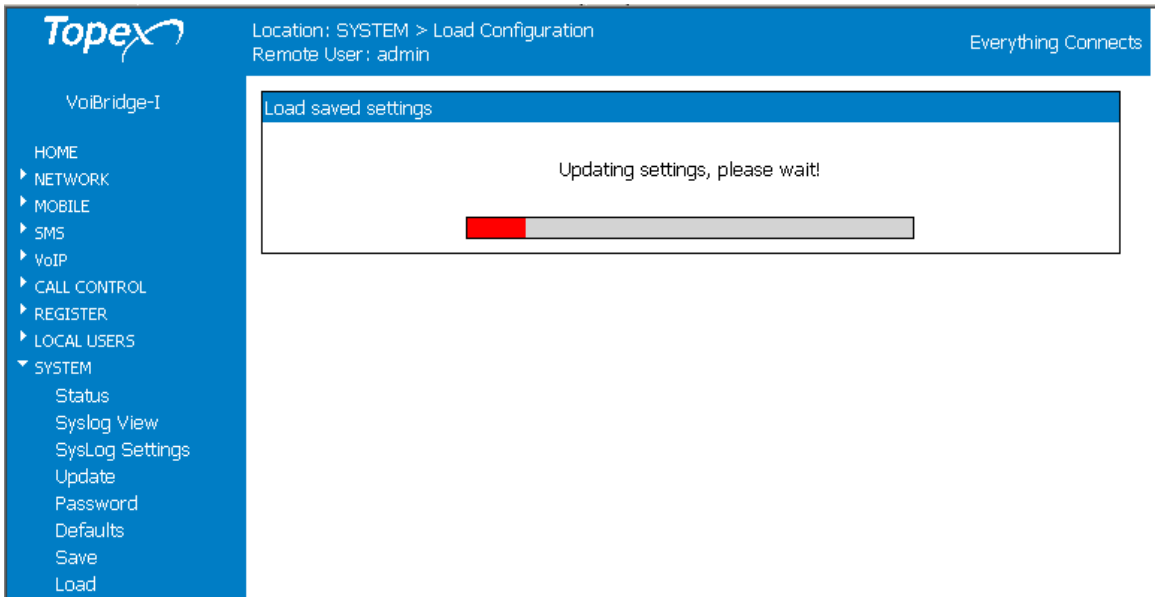
Use “Browse” or “Choose” button to navigate to the location where the configuration file was saved.



Press Open, then click “Send” to send the file to the VoiBridge I.



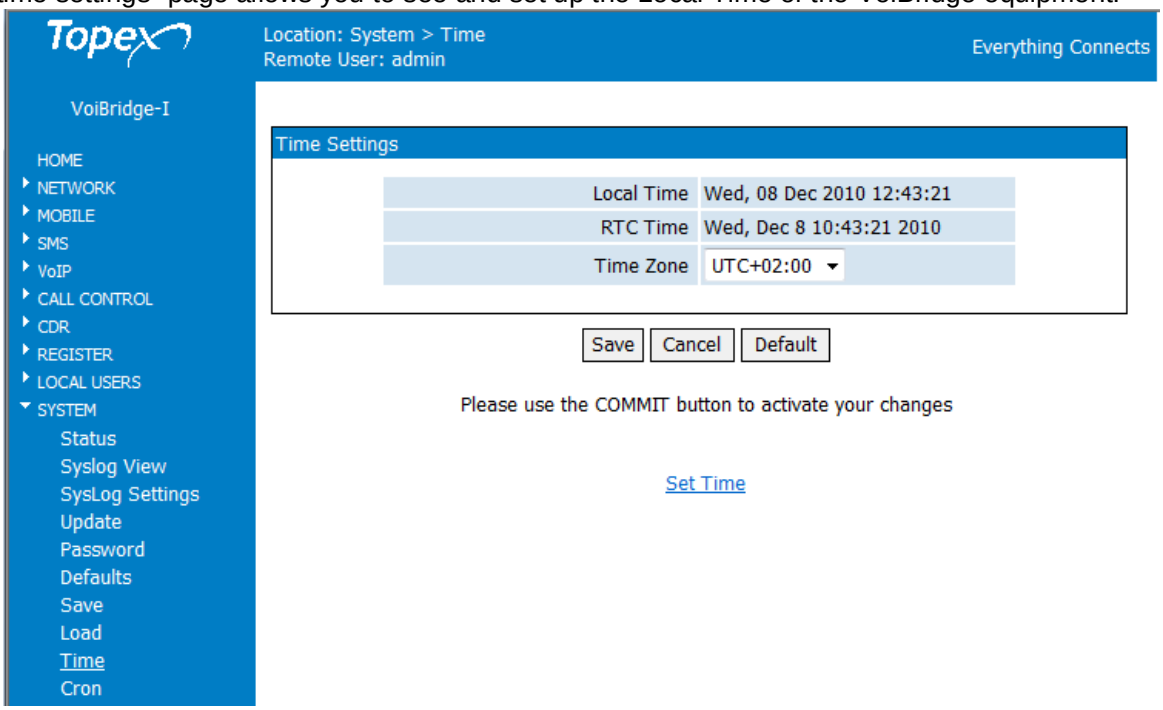
then click “Send” to send the file to the VoiBridge I unit.



First the message “Updating settings, please wait” will start to blink, and then a red progress, below the blinking message: “

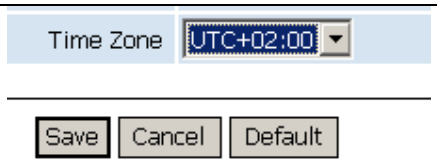
6.10.9 Time Settings

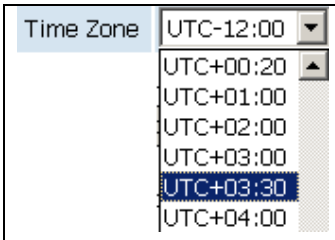
The ‘time settings” page allows you to see and set up the Local Time of the VoiBridge equipment:



The RTC time, kept by the Real Time Clock of the equipment, is the one synchronized form the distant NTP server, which provides UTC time (universal time, formerly called GMT).

But you must adjusts this universal time to the actual time / date, taking into account the local time zone, which can be before or behind the UTC time (for instance in Romania the official time is set at two hours after UTC)



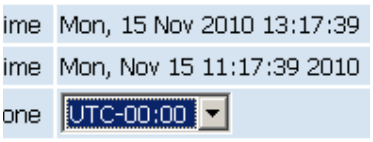


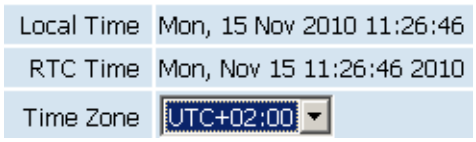
To adjust this, you have the "Time Zone" field.
It activates a drop list, you can choose instead of the default UTC-00:00 the value corresponding to **your** time zone, from UTC-12.00 up to UTC+14.00!

All time zones of the are available, including those with half hour or quarter hour increment!

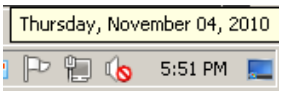
The new value will be active only after you press Commit and VoiBridge Literestarts with the new settings:

In the example below you can see that, following the setting of time Zone to UTC + 02 : 00 and the rebooting of the equipment, now the value shown by "**Local time**" is identical to the one displayed by the RTC Time:

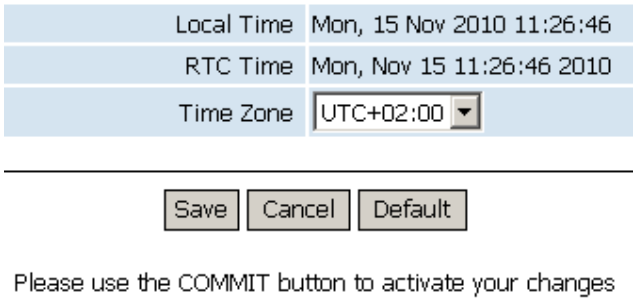




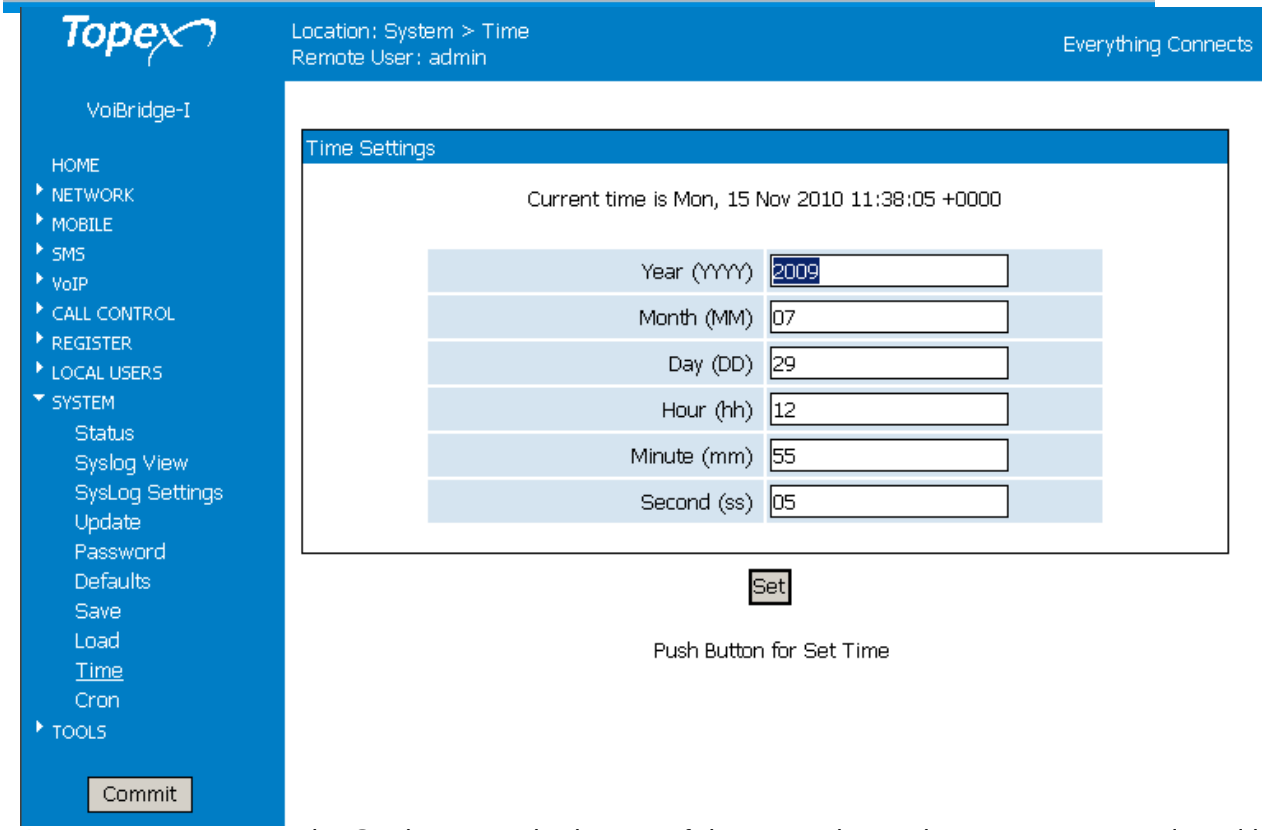
Note that during the official "summer" period, the official Time Zone for Bucharest should be set to has been set to **UTC+03.00**, instead of +2, since this is the right time for Romania, while the Daylight saving Time is used:



Set time

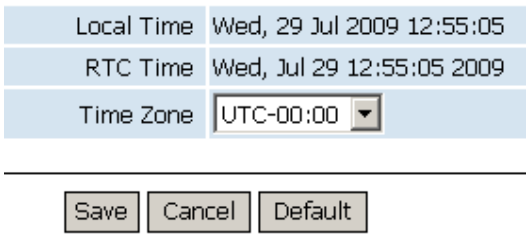


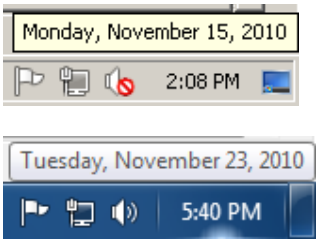
The "set Time" link at the bottom of the Time page gets you to a sub-page where you can manually set up any date and time you want, no matter which is the real time, provided by NTP servers of kept by the Real Time Clock of the equipment.



As soon as you press the **Set** button at the bottom of the page, the equipment starts operating with the new date /time that you have set up.

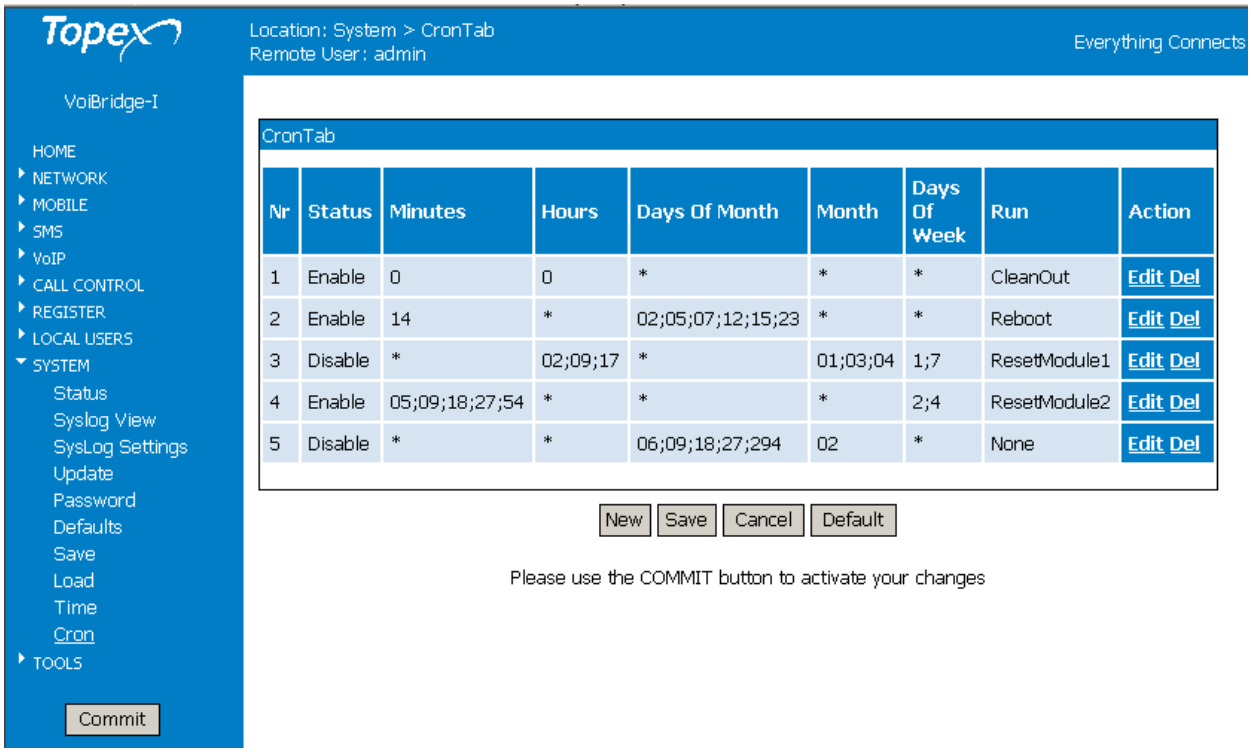
In the example below you can see the operation following manual setting of the time to the 2009-07-29 22-55-05 value shown above.
Currently both the RTC and the Local Time of the VoiBridge Lite GSM are showing “29 July 2009”, even if we are now in November 2010!





6.10.10 Cron tab

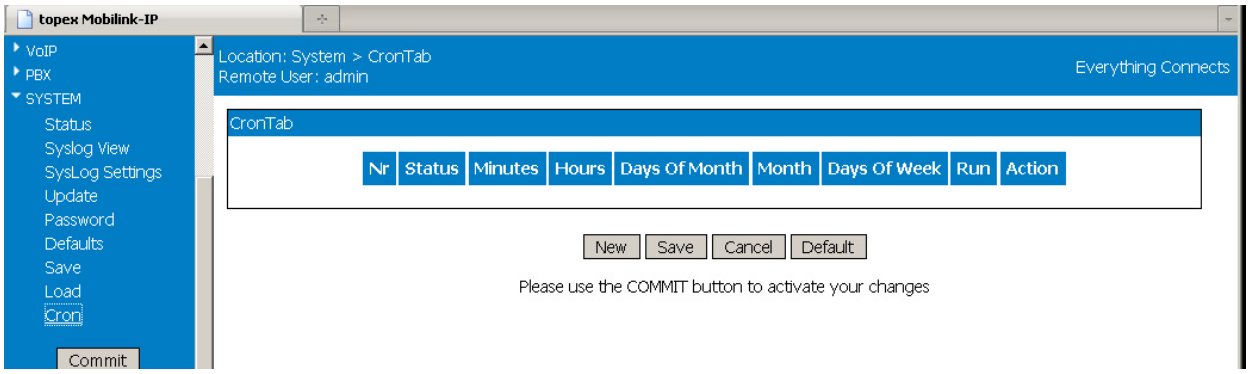
Allows you to set up entries in the *CronTab* table.



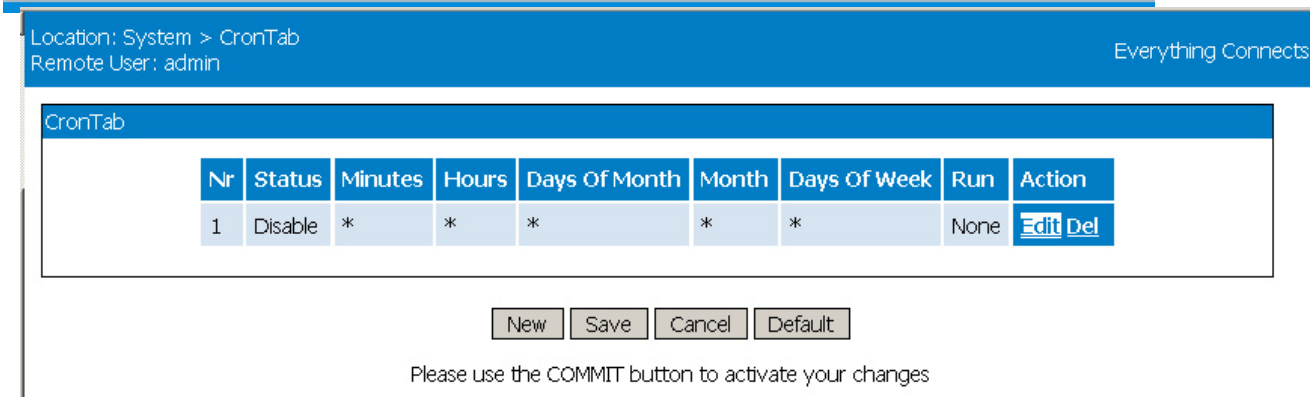
"Cron" is an Unix utility (Unix daemon) that executes at a specified time and date commands from a crontab file. Cron is used to schedule some functions to be performed periodically, in this case to reboot the VoiBridge equipment, to reset one or several of the Mobile modules, to clear the output folder, or other operations.

The Cron feature is intended for long-term operation (you can program ahead for the whole year!) and for seldom-occurring events. For events that you want to occur very frequently, for instance every 5 minutes, this is not the best solution!

At first, all rows of the CronTab table are empty, you must use **New** and **Save** to create a new entry:



And then **Edit** to change it:


Location: System > CronTab
Remote User: admin
Everything Connects
CronTab
Nr Status Minutes Hours Days Of Month Month Days Of Week Run Action
1 Disable * * * * * None Edit Del
New Save Cancel Default
Please use the COMMIT button to activate your changes

Status – Enable or Disable. If an entry is set as Disable, it will not be active.
You can define and save several entries, but activate them only when they are need depending on the actual requirements of the system.

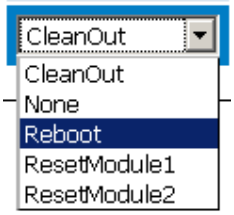
CronTab

Nr	Status	Minutes	Hours	Days Of Month	Month	Days Of Week	Run	Action
1	Enable	0	0	*	09	05	CleanOut	Edit Del
2	Enable	15	9	14	*	*	ResetModule1	Edit Del
3	Disable	33	2	21	08	*	Reboot	Edit Del
4	Disable	59	11	30	*	04	ResetModule2	Edit Del

Minutes This field controls what minute of the hour the command will run on, values are between '0' and '59'
Hours This controls what hour the command will run on, and is specified in the 24 hour clock format, values must be between 0 and 23 (0 is midnight)
dom This is the Day of Month, that you want the command run on, values from 1 up to 31. When you need to run a command on the 4th of each month, you should enter in this field the value 04.
month This is the month a specified command will run on, it may be specified numerically (0-12).
dow This is the Day of Week that you want a command to be run on, it must also be numeric (0-7)

Run This is the command that you want run. Default is **None**;

Currently you can use the commands **CleanOut**, to delete the content of the OUT directory of the device (where there are stored the log files generated by the Capture option), **Reboot**, to restart the VoiBridge Liteequipment, r respectively **Reset Module 1** …4 to reset a certain mobile module, or **CleanSMS**, to deletes all received SMS in order to free the storage memory for new text messages..



By default, all fields of the Cron table are filled with a star, * , which means “any”.

A few examples:.
19 * * * * ResetModule1 - The command to reset module 1 will be run at the 19th minute past every hour
00 5 * * 5 ResetModule2 The command to reset module 2 will be run at 5 in the morning every Saturday
01 * 25 10 * ResetModule1 The command to reset module 1 will be run hourly on the 15th of October.

Notes:

- Under dow, the values 0 and 7 are both Sunday.

- If both the dom and dow are specified, the command will be executed when **either** of the events happen.

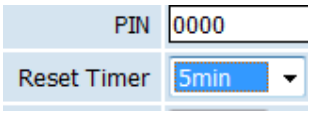
For instance:
*** 10 22 * 1 Run**
Will run the command at ten o'clock in the morning Monday and every 22nd, and will produce the same result as both of these two entries put together would:
*** 10 22 * * Run**
*** 10 * * Run**

-The Cron of VoiBridge Litealso accepts numeric lists in the fields.
Lists can be in the form: 1;3;4 (meaning 1 and 3 and 4). Notice that the delimiter is a semicolon ";".

For instance:
33 10 * * 1;2;3;4;5 Run
Will run the respective command at 10:33 every Monday, Tuesday, Wednesday, Thursday and Friday,

While
0 0 1;10;15 * * Run
Will run the respective command at midnight on the 1st ,10th & 15th of each month.

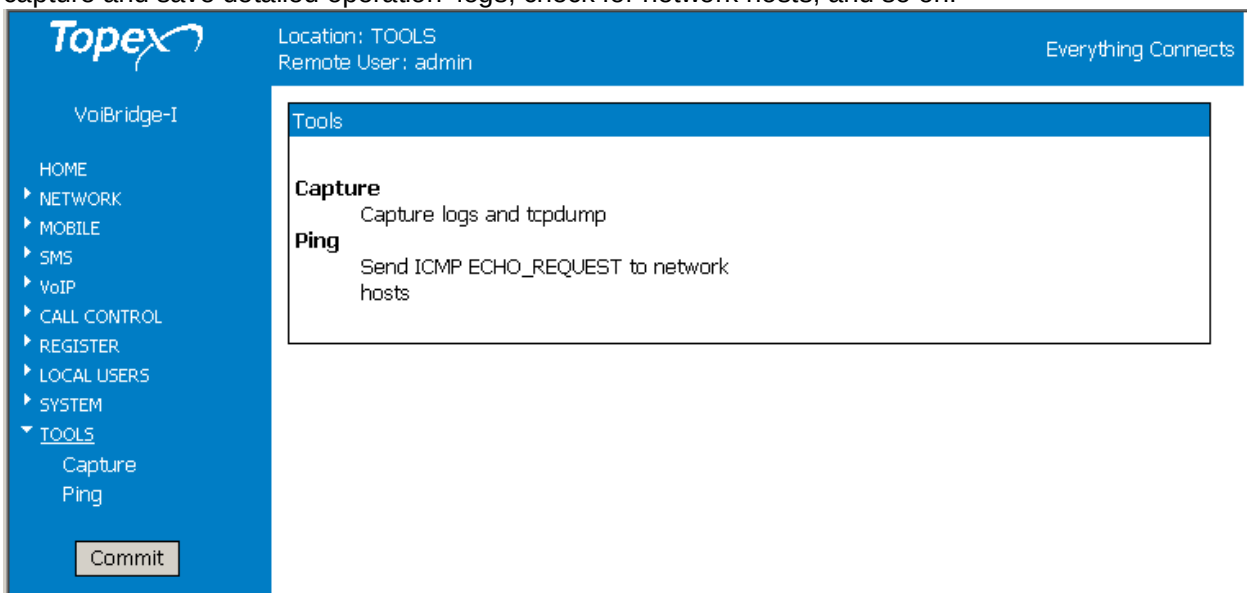
Frequently reset a module
If you need to reset a certain Mobile module every 5 minutes, for instance, the usage of Cron is quite difficult: you should write in the field "Minutes" **all** the respective values, such as: "00;05;10,15;20;25;30;35;40;45;50;55" – this is cumbersome.
A better solution is to go to **Mobile>Settings** page and use More to reach the "Reset Timer" field, where you select "5min' to make the respective mobile module to be resetted every five minutes!



The command "**None**" … does nothing at the specified time / date!
You can use this option, to define and save several hours and dates, but no action will be in fact taken, until you replace in the filed Run the option <<None>> with the one you really want to happen: CleanOut, Reboot, Reset Module 4, etc.

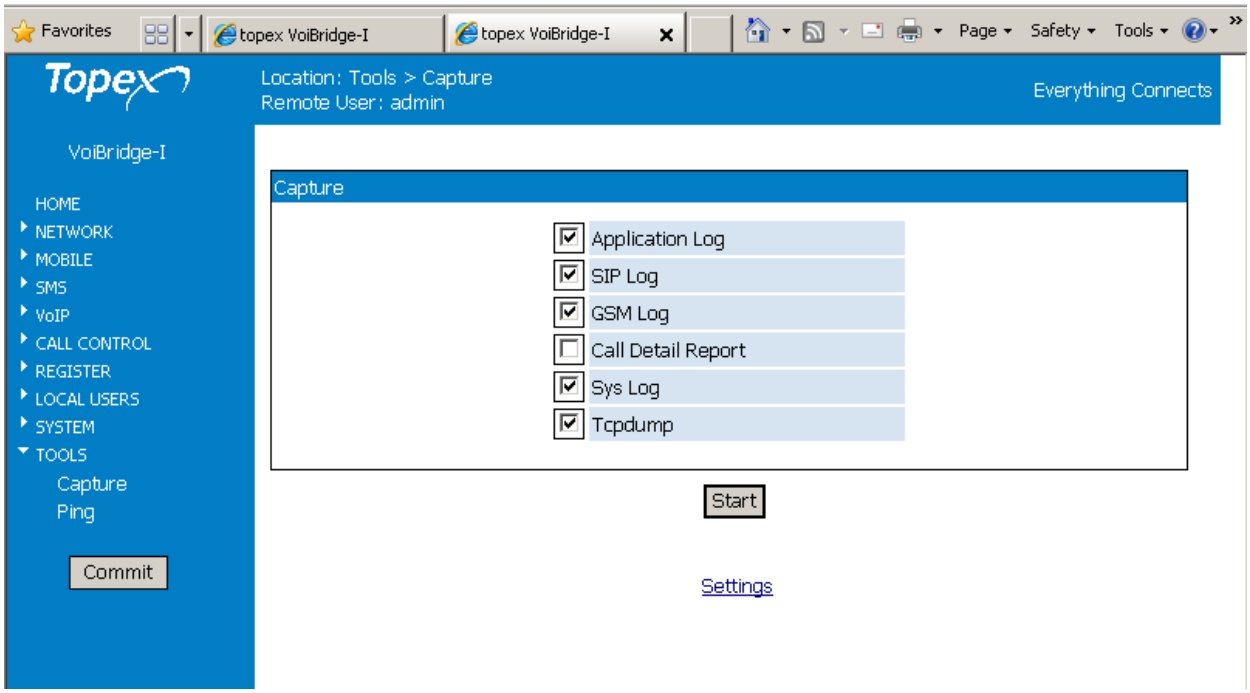
6.11 TOOLS

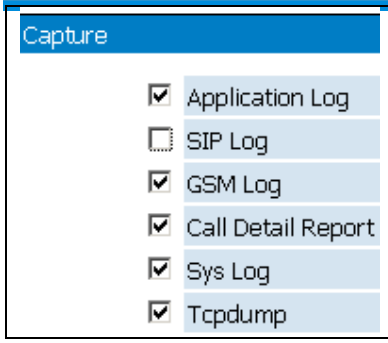
These are instruments or tools for advanced debugging of the equipment – the allow a specialist to capture and save detailed operation logs, check for network hosts, and so on.



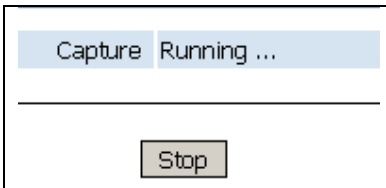
6.11.1 Capture

Captures logs, saves and downloads them and performs tcp dump.





First, you should mark the checkboxes for the log items that you want to be included in the capture (logs for Application, System, SIP, Mobile, Call Detail Records, etc.) then you press Start to begin capture.



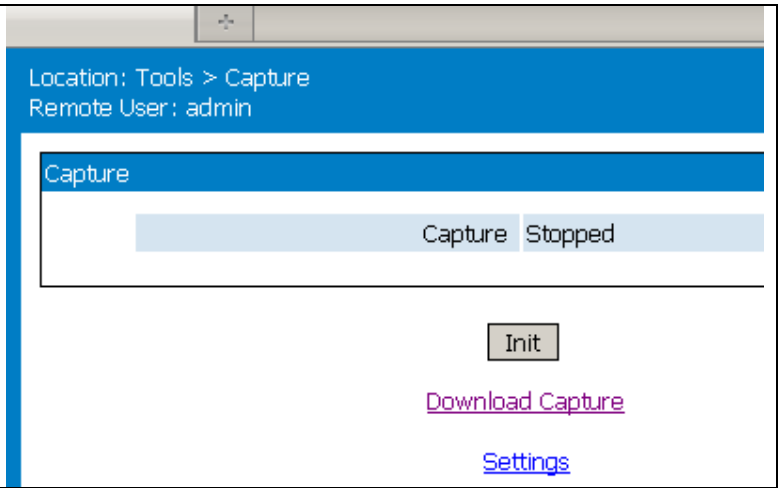
The screen now shows the message “capture Running …” and the name of the button changes to Stop.

Click it to stop the capture.

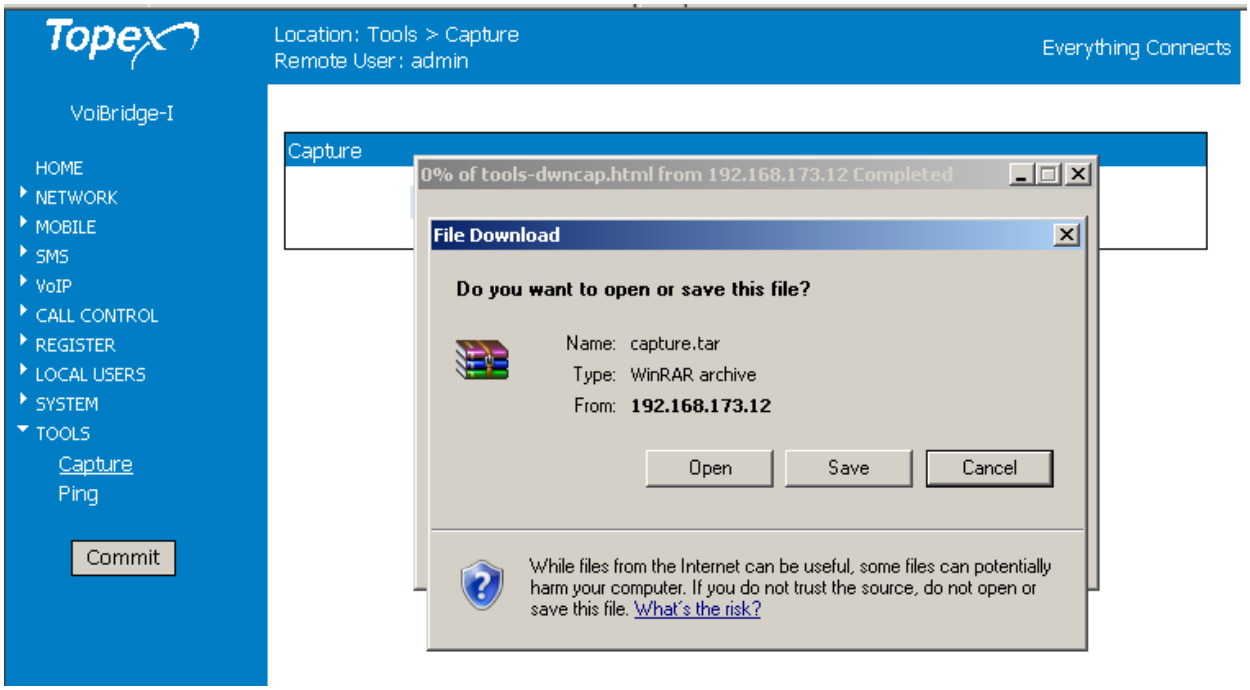
Now the message says “Capture stopped”.

You can:

- pres **Init** to go to the initial state and erase the current capture that is stored in VoIBridgeI4 IP
- **download** the capture that you performed,
- Go to **settings** page for advanced configuration of the capture functions.



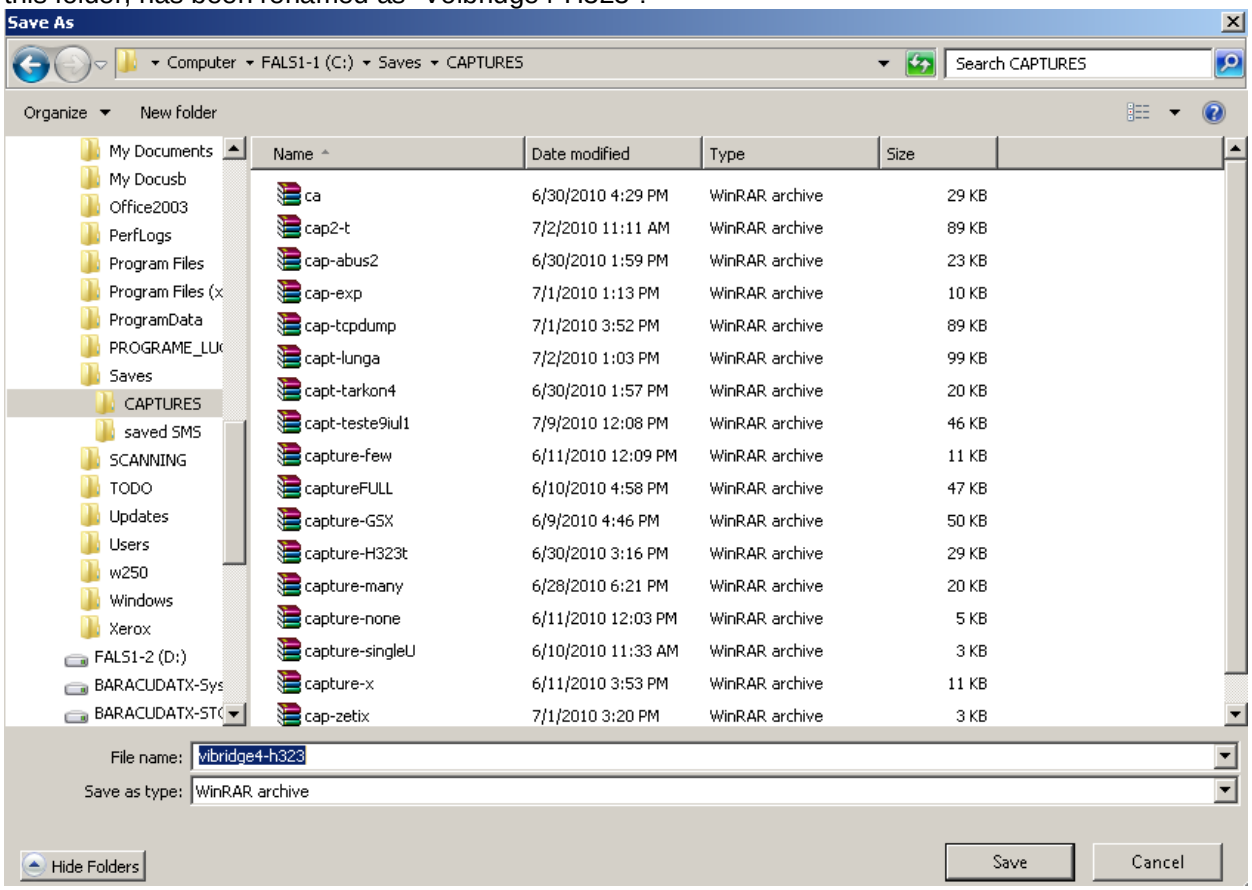
Should you choose Download, the window “Opening capture.tar” shows up, asking you what to do with this file.



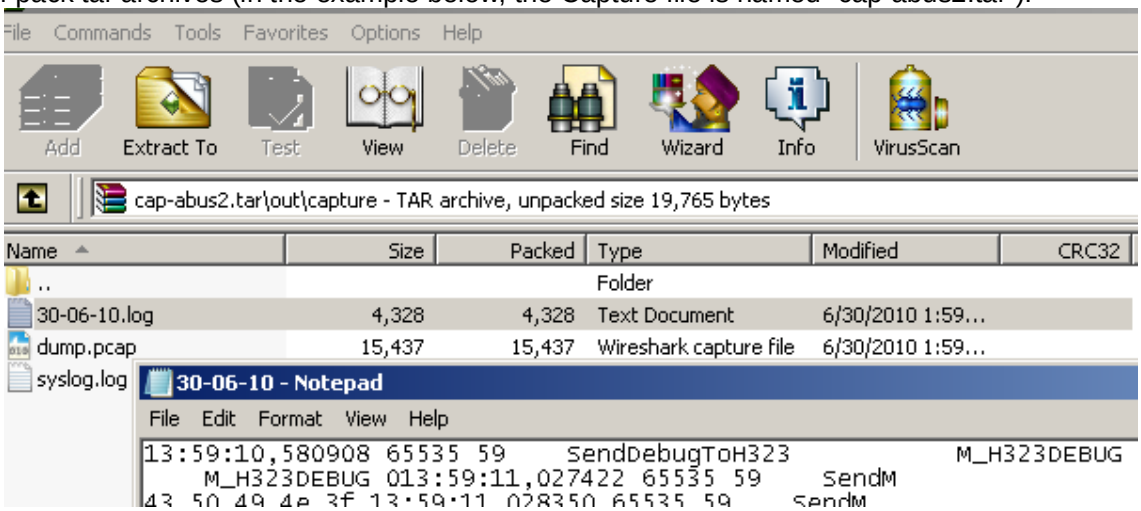
Normally, you should save it into a dedicated folder on your computer, to be able later to send the downloaded capture to the specialists (support team) or to look at it yourself.

You can change the default directory, or make a special folder to store the captures, if you use frequently this feature.

In the example below, this directory is called “CAPTURES”, and the current capture file, which is saved in this folder, has been renamed as “Voibridge4-H323”:

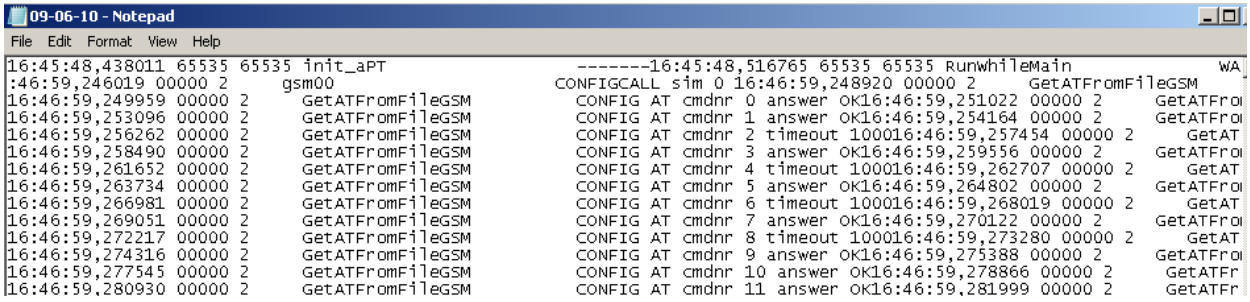


The capture files are intended for the specialized support personnel.
If you want to view the content of the Capture archive, you should first open it with an utility program which can un-pack tar archives (in the example below, the Capture file is named “cap-abus2.tar”):



The Capture archive includes several directories holding different files, such as "**dump.tcap**" which is the result of the TCPDUMP operation, and "**DD-MM-YY.log**", which is the log created by the Capture operation.
It is a text file, whose name indicates the day when it was created, such as "30-06-10" in this example:

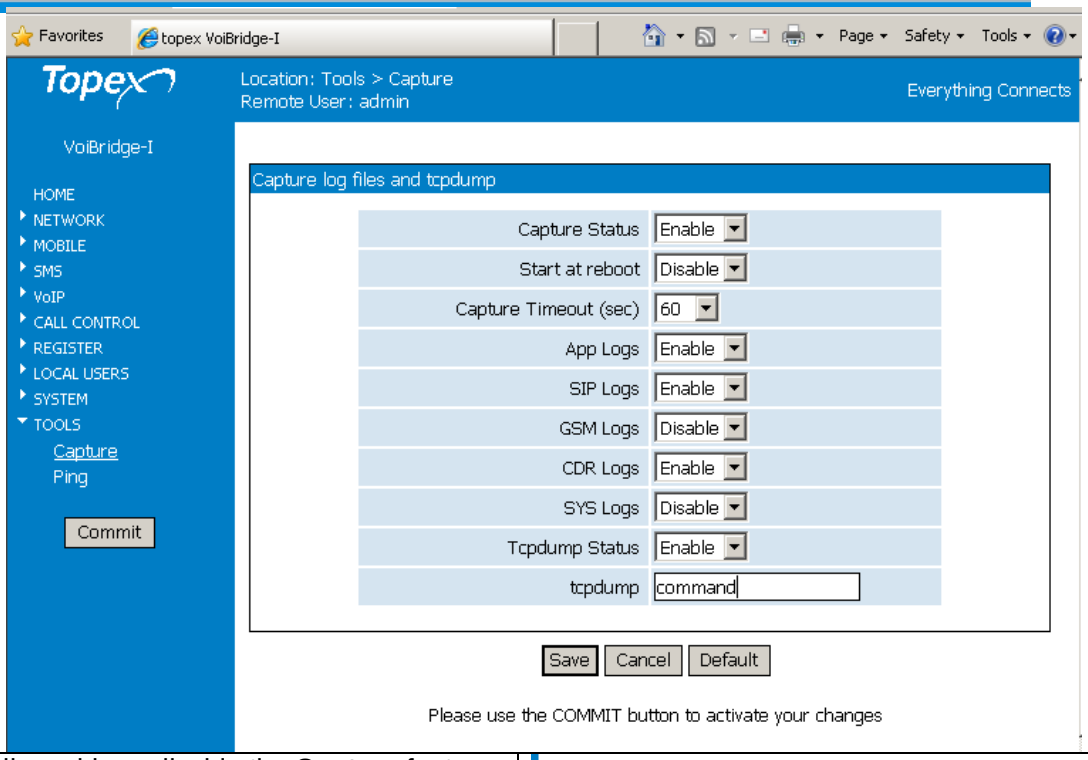
14:40:55,847439 65535 59 SendDebugToH323 M_H323DEBUG
14:40:55,848797 65535 59 SendDebugToH323OUT M_H323DEBUG
14:40:55,923062 65535 144 send_oksim0 OK SIM0
14:40:55,923914 65535 144 analize_mes_mobip buflng 11 007808 4f4b205349
14:40:55,924997 65535 144 DispatchFromPort M_PORTISDN port 0
14:40:55,925868 65535 144 DispatchFromPort MSKJON
14:40:55,926696 65535 144 DispatchFromPort P_KEYPAD dest 0 len 8 debug_run 0 debug_gsm 0 moniport 1
14:40:55,938989 00000 3 Pid_Set_Timer_Persistent tmr 0 val 10000
14:40:56,354170 65535 65535 init_aPT -------
14:40:56,422727 65535 65535 RunWhileMain WARN int in int retval 70022, run_nr
Or like this:



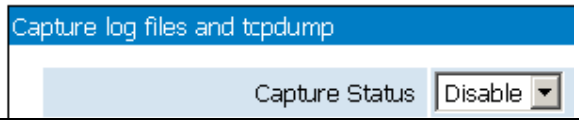
6.11.2 Settings

This page allows you to configure advanced settings for the Capture feature:

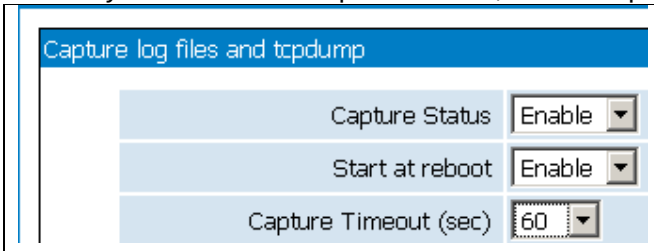
- activate of the Capture feature
- enable capturing upon starting up of VoiBridge Lite(at boot) and duration of this reboot capture
- establish default checkboxes for the **TOOLS>Capture page**, this way setting up the log files which will be included it the capture archive
- tcpdump status (enabled, disabled) and command-line parameters:



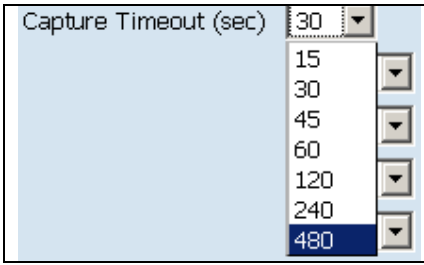
First of all, enable or disable the **Capture** feature. By default, it is Disabled.
Set it to Enable if you need to perform capture!



When you Disable the Capture feature, all subsequent fields will be disabled!

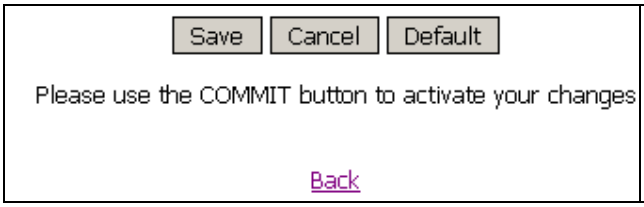


If you enable "**Start at reboot**", the capture will begin immediately as VoiBridge Litestarts operating, and will continue for the duration established in the field "Capture Timeout". VoIBridgeI4 will run the Capture utility immediately as it starts operation, before other programs, such as the principal application, the call control function.



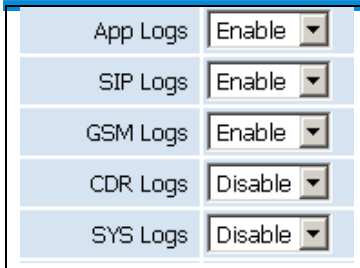
Capture Timeout – here you can select from the drop list the duration of the capture performed upon VoiBridge Litestart-up. Available time intervals are 15, 30, 45 , 60, 120, 280 and respectively 480 seconds (up to eight minutes).

Activate:

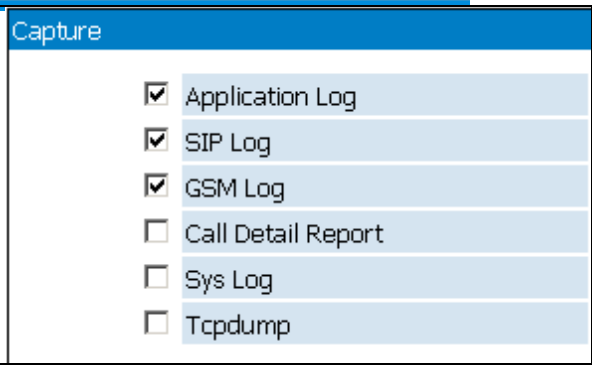


To activate the settings, use the buttons Save and respectively Commit to make active the option of performing capture upon start-up, and Back to go back to the first page of the TOOLS>Capture menu.

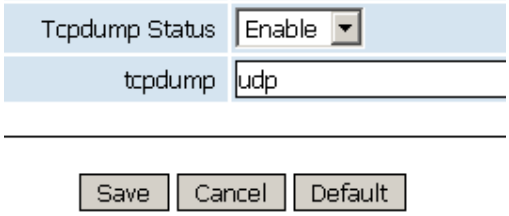
Establishing the defaults for capture:



If in "Settings" you have Enabled, for instance, only the first three items for logs, upon next restart of VoIBridgeI4, in the page Capture you will see that, correspondingly, the first three checkboxes are marked by default:



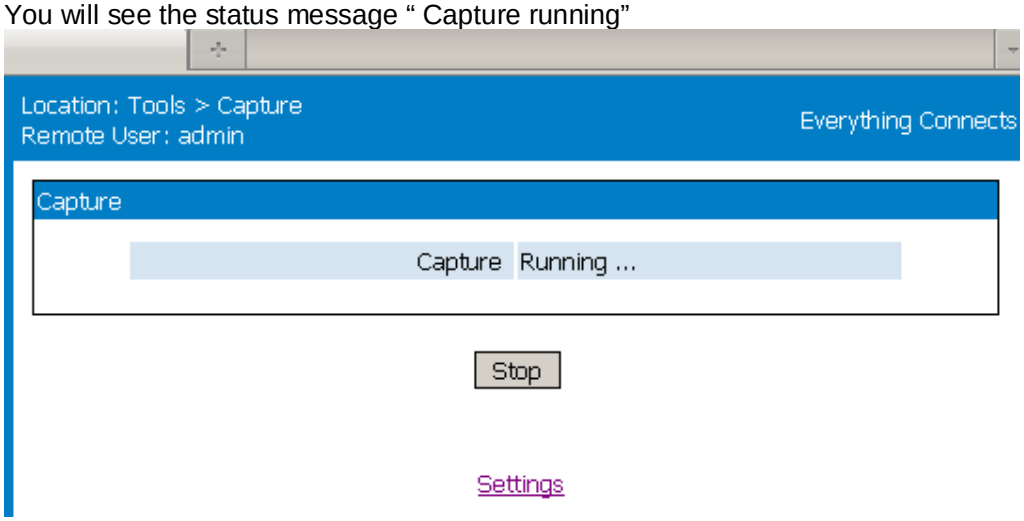
TCPDUMP

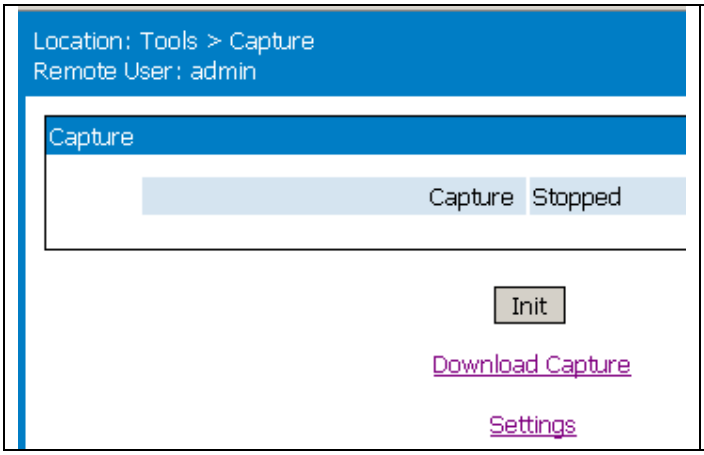


You can Enable the TCPDUMP feature, then in the field "tcpdump" you can insert command – line parameters, to filter out the stored dumping information.

For instance, "udp" tells TCPDUMP to store only information about the packets transferred using the UPD protocol.

Save the new settings, then press Start to begin the capture.
You will see the status message " Capture running"





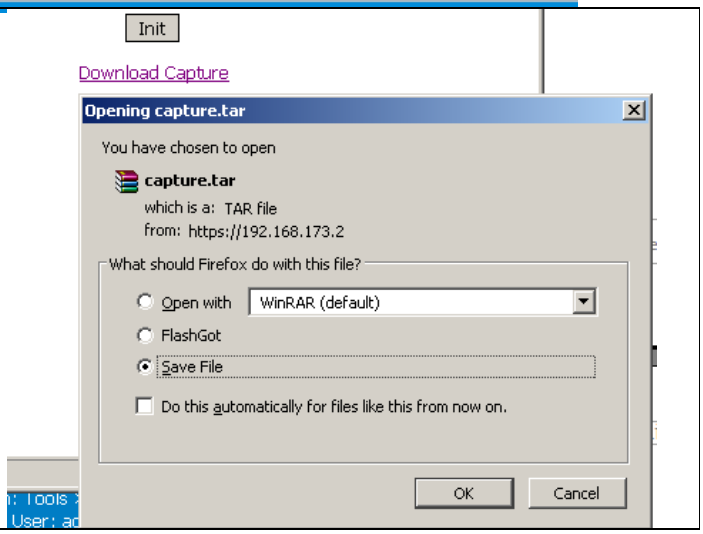
After you have stopped the Capture by clicking the Stop button, you have three options, as shown in the image to the left:

- press **Init** to erase the Capture archive that was created and to go back to the initial configuration page for Capture;
- **Download Capture**, to save the Capture archive on the harddisk;
- **Settings**, to go to the page with advanced settings for capture.

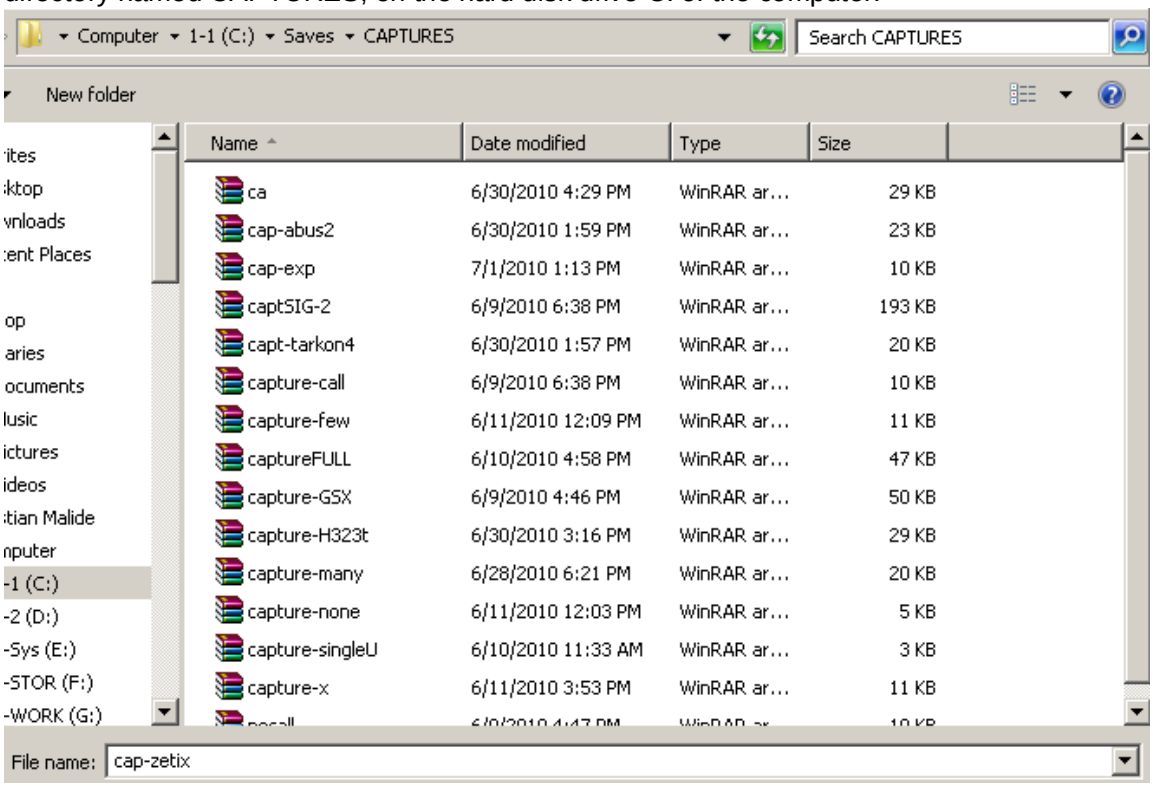
6.11.3 Download Capture

When you press the link "Download Capture", the window "Opening capture.tar" shows up, indicating that your computer tries to open the capture archive which is located on VoIBridgeI4 IP.

Select "save file" to save it in a directory of your choice on your computer.



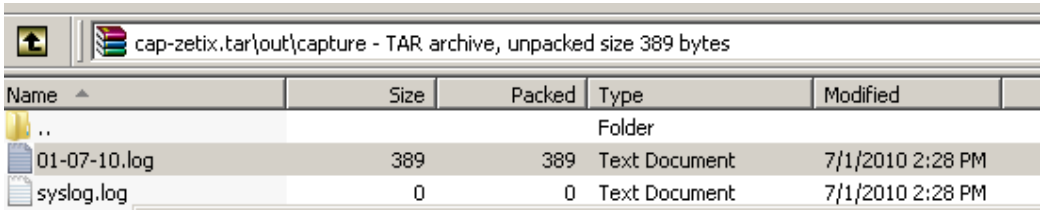
In the example below, the capture files (the latest one being renamed as "cap-zetix" are stored in the directory named CAPTURES, on the hard disk drive C: of the computer:


Computer
1-1 (C:)
Saves
CAPTURES
Search CAPTURES
New folder
Name
Date modified
Type
Size
ca 6/30/2010 4:29 PM WinRAR ar... 29 KB
cap-abus2 6/30/2010 1:59 PM WinRAR ar... 23 KB
cap-exp 7/1/2010 1:13 PM WinRAR ar... 10 KB
captSIG-2 6/9/2010 6:38 PM WinRAR ar... 193 KB
capt-tarkon4 6/30/2010 1:57 PM WinRAR ar... 20 KB
capture-call 6/9/2010 6:38 PM WinRAR ar... 10 KB
capture-few 6/11/2010 12:09 PM WinRAR ar... 11 KB
captureFULL 6/10/2010 4:58 PM WinRAR ar... 47 KB
capture-GSX 6/9/2010 4:46 PM WinRAR ar... 50 KB
capture-H323t 6/30/2010 3:16 PM WinRAR ar... 29 KB
capture-many 6/28/2010 6:21 PM WinRAR ar... 20 KB
capture-none 6/11/2010 12:03 PM WinRAR ar... 5 KB
capture-singleU 6/10/2010 11:33 AM WinRAR ar... 3 KB
capture-x 6/11/2010 3:53 PM WinRAR ar... 11 KB
File name: cap-zetix

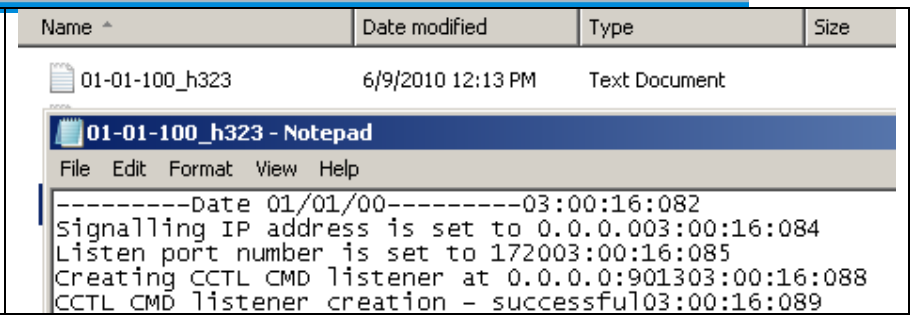
The Capture must be sent to the support personnel.

6.11.4 View Capture

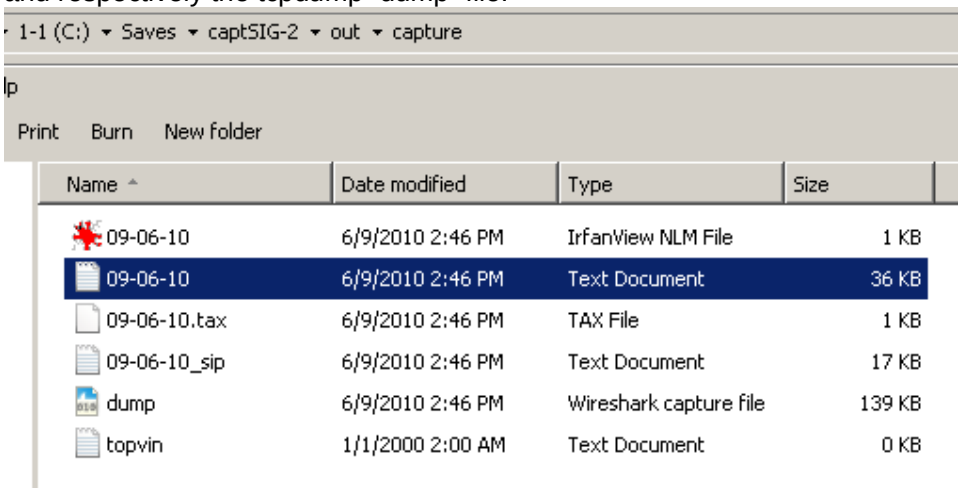
The Capture files can be opened with an utility which knows to unpack .tar archives.
Depending upon the configuration you have selected, the Capture archive may contain a single text log, or several files:



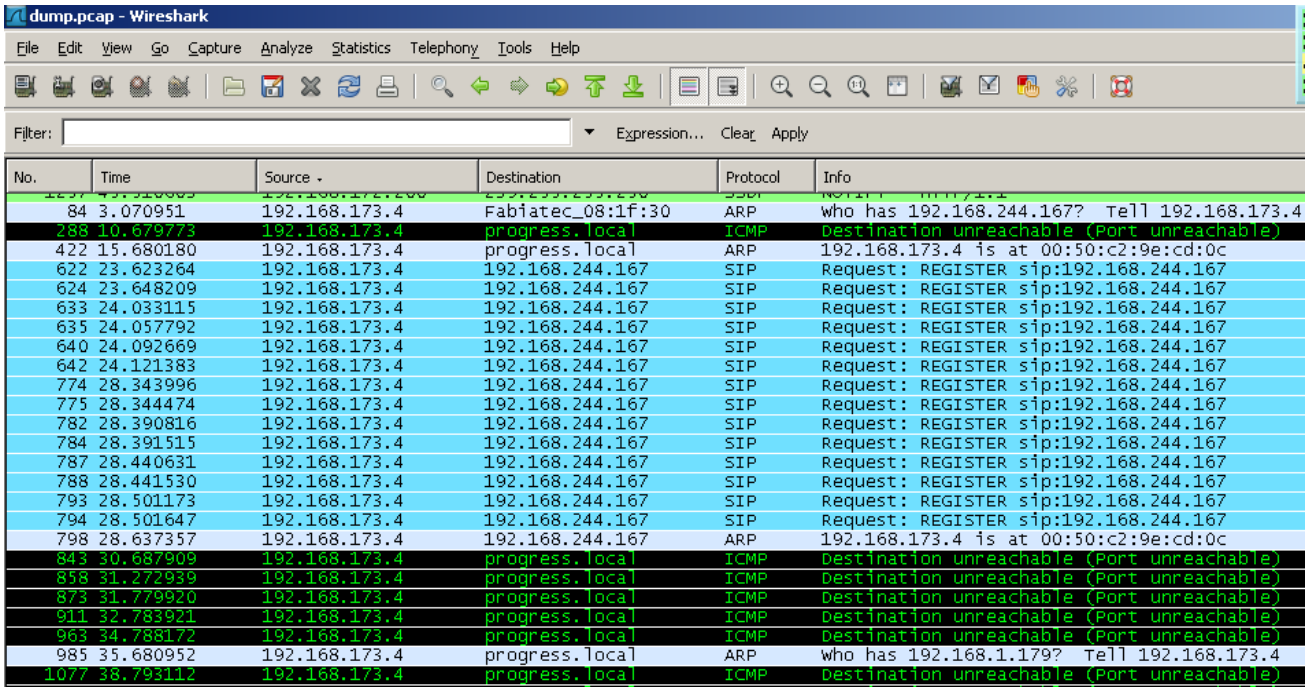
The text file is the Capture log itself:



Other files in the Capture archive may contain information about billing (CDR), about the SIP users (SIP) and respectively the tcpdump “dump” file:


1-1 (C:) ▾ Saves ▾ captSIG-2 ▾ out ▾ capture
lp
Print Burn New folder
Name
Date modified
Type
Size
09-06-10 6/9/2010 2:46 PM IrfanView NLM File 1 KB
09-06-10 6/9/2010 2:46 PM Text Document 36 KB
09-06-10.tax 6/9/2010 2:46 PM TAX File 1 KB
09-06-10_sip 6/9/2010 2:46 PM Text Document 17 KB
dump 6/9/2010 2:46 PM Wireshark capture file 139 KB
topvin 1/1/2000 2:00 AM Text Document 0 KB

You can open it with dump.pcap (Ethereal or WireShark program)



Or like this:

capt1call.pcap - Wireshark

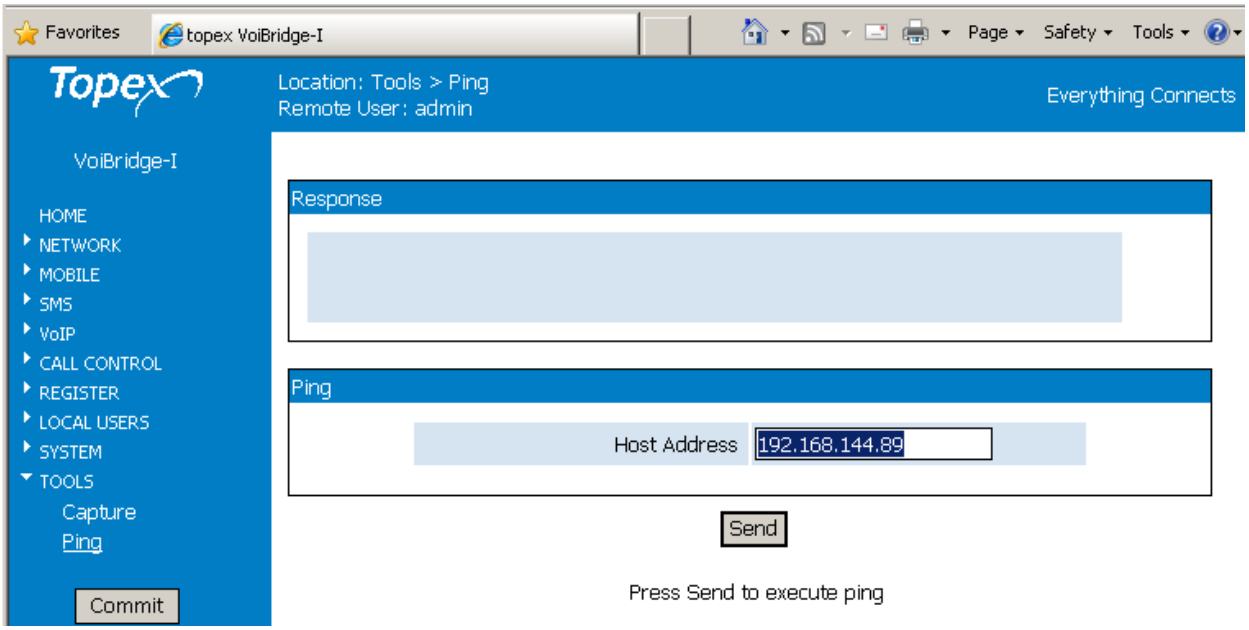
File Edit View Go Capture Analyze Statistics Telephony Tools Help

Filter: not arp and !(udp.port == 53) Expression... Clear Apply

No.	Time	Source	Destination	Protocol	Info
1	0.000000	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=1 Ack=1 Win=8712 Len=48
2	0.003446	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=49 Ack=1 Win=8712 Len=48
3	0.010126	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=49 Win=125 Len=0
4	0.010691	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=97 Ack=1 Win=8712 Len=48
5	0.010283	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=97 Win=125 Len=0
6	0.011807	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=145 Win=125 Len=0
7	0.014315	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=145 Ack=1 Win=8712 Len=48
8	0.015335	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=193 Win=125 Len=0
9	0.018212	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=193 Ack=1 Win=8712 Len=48
10	0.019253	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=241 Win=125 Len=0
11	0.022108	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=241 Ack=1 Win=8712 Len=48
12	0.023215	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=289 Win=125 Len=0
13	0.026055	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=289 Ack=1 Win=8712 Len=48
14	0.027053	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=337 Win=125 Len=0
15	0.030003	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=337 Ack=1 Win=8712 Len=48
16	0.031035	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=385 Win=125 Len=0
17	0.034122	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=385 Ack=1 Win=8712 Len=64
18	0.035254	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=449 Win=125 Len=0
19	0.038181	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=449 Ack=1 Win=8712 Len=48
20	0.039257	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=497 Win=125 Len=0
21	0.042088	192.168.:	192.168.1.179	TCP	EtherNet/IP-1 > 52210 [PSH, ACK] Seq=497 Ack=1 Win=8712 Len=48
22	0.043215	192.168.:	192.168.173.12	TCP	52210 > EtherNet/IP-1 [ACK] Seq=1 Ack=545 Win=125 Len=0
23	1.966237	192.168.:	192.168.1.99	TCP	sddp > 13001 [SYN] Seq=0 Win=5840 Len=0 MSS=1460 WS=0
24	1.966609	192.168.:	192.168.173.12	TCP	13001 > sddp [SYN, ACK] Seq=0 Ack=1 Win=5840 Len=0 MSS=1460 WS=2
25	1.967167	192.168.:	192.168.1.99	TCP	sddp > 13001 [ACK] Seq=1 Ack=1 Win=5840 Len=0
26	2.116266	192.168.:	192.168.1.99	TCP	sddp > 13001 [PSH, ACK] Seq=1 Ack=1 Win=5840 Len=18
27	2.116501	192.168.:	192.168.173.12	TCP	13001 > sddp [ACK] Seq=1 Ack=19 Win=5840 Len=0
28	2.118142	192.168.:	192.168.173.12	TCP	13001 > sddp [FIN, ACK] Seq=1 Ack=19 Win=5840 Len=0
29	2.119144	192.168.:	192.168.1.99	TCP	sddp > 13001 [FIN, ACK] Seq=19 Ack=2 Win=5840 Len=0
30	2.119370	192.168.:	192.168.173.12	TCP	13001 > sddp [ACK] Seq=2 Ack=20 Win=5840 Len=0
31	7.215932	192.168.:	192.168.1.99	TCP	qsm-proxy > 13001 [SYN] Seq=0 Win=5840 Len=0 MSS=1460 WS=0
32	7.216246	192.168.:	192.168.173.12	TCP	13001 > qsm-proxy [SYN, ACK] Seq=0 Ack=1 Win=5840 Len=0 MSS=1460 WS=2
33	7.216799	192.168.:	192.168.1.99	TCP	qsm-proxy > 13001 [ACK] Seq=1 Ack=1 Win=5840 Len=0
34	7.365762	192.168.:	192.168.1.99	TCP	qsm-proxy > 13001 [PSH, ACK] Seq=1 Ack=1 Win=5840 Len=18
35	7.366007	192.168.:	192.168.173.12	TCP	13001 > qsm-proxy [ACK] Seq=1 Ack=19 Win=5840 Len=0
36	7.369285	192.168.:	192.168.173.12	TCP	13001 > qsm-proxy [FIN, ACK] Seq=1 Ack=19 Win=5840 Len=0
37	7.370425	192.168.:	192.168.1.99	TCP	qsm-proxy > 13001 [FIN, ACK] Seq=19 Ack=2 Win=5840 Len=0
38	7.370758	192.168.:	192.168.173.12	TCP	13001 > qsm-proxy [ACK] Seq=2 Ack=20 Win=5840 Len=0
39	9.271986	192.168.:	192.168.173.12	SIP/SDP	Request: INVITE sip:0724545419@192.168.173.12, with session description
40	9.357567	192.168.:	192.168.1.179	SIP	Status: 100 Trying
41	12.740018	192.168.:	192.168.1.179	SIP/SDP	Status: 183 Session Progress, with session description
42	12.741385	192.168.:	192.168.1.179	RTP	PT=ITU-T G.711 PCMA, SSRC=0x6B8B4567, Seq=1876, Time=1307744
43	12.759311	192.168.:	192.168.173.12	RTP	PT=ITU-T G.711 PCMA, SSRC=0x5FCFC500, Seq=14688, Time=0, Mark
44	12.761032	192.168.:	192.168.1.179	RTP	PT=ITU-T G.711 PCMA, SSRC=0x6B8B4567, Seq=1877, Time=1307904
45	12.780950	192.168.:	192.168.1.179	RTP	PT=ITU-T G.711 PCMA, SSRC=0x6B8B4567, Seq=1878, Time=1308064
46	12.786045	192.168.:	192.168.1.99	TCP	qsm-gui > 13001 [SYN] Seq=0 Win=5840 Len=0 MSS=1460 WS=0
47	12.786291	192.168.:	192.168.173.12	TCP	13001 > qsm-gui [SYN, ACK] Seq=0 Ack=1 Win=5840 Len=0 MSS=1460 WS=2

6.11.5 Ping

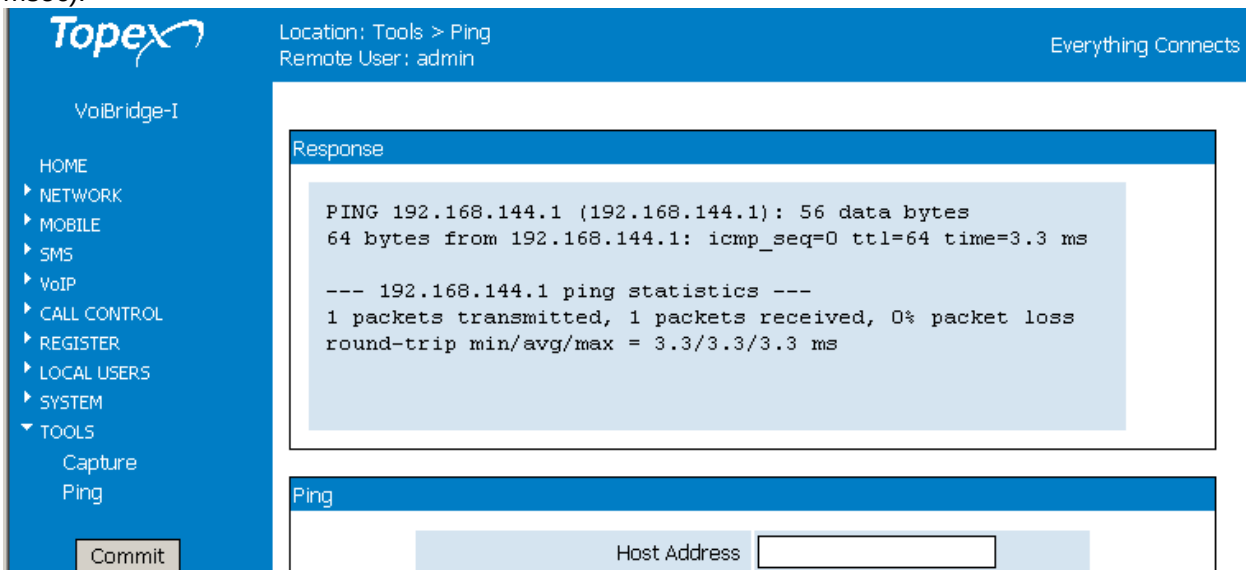
Allows you to send an Internet Control Message Protocol (ICMP) Echo Request to the address you enter in the field “Host Address”:



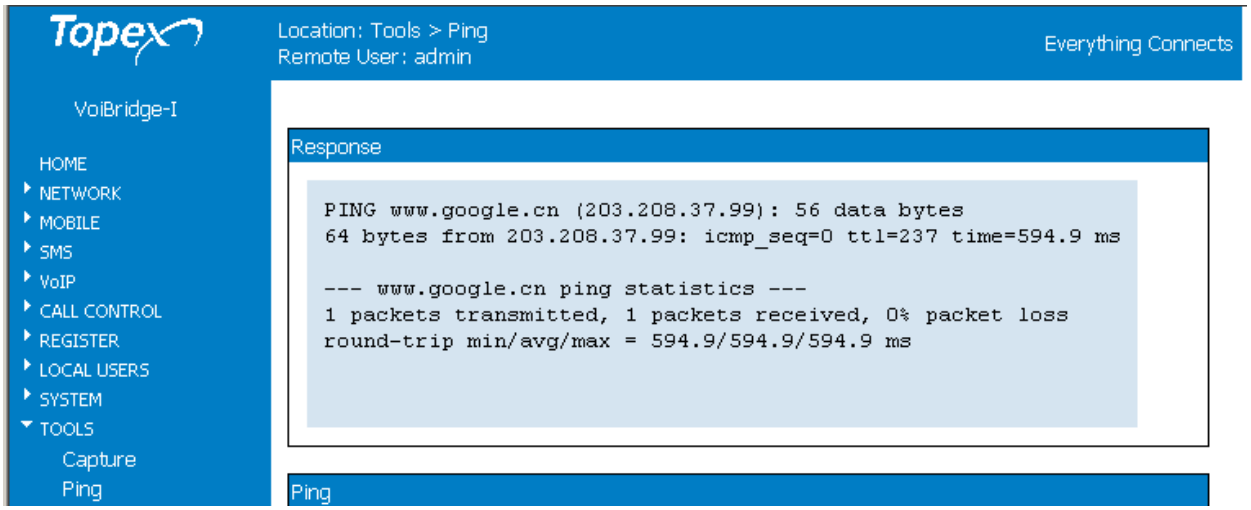
Ping is a basic Internet program that allows a user to verify that a particular IP address exists and can accept requests. It used diagnostically to ensure that a host computer the user is trying to reach is actually operating, to test connectivity and determine response time.

Enter the address and click the Send button.
The field “Response” will show the result (received or not) and statistics about the time or propagation.

You can PING a host in the local network were VoIBridgeI4 is connected, with very low response time (2-5 msec):

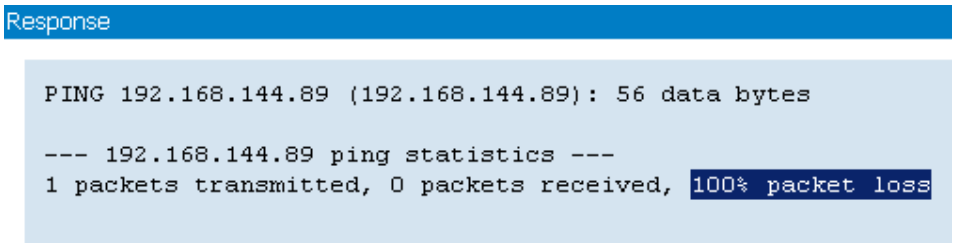


Or you can use TOOLS>Ping to check a public (external address), when the round trip delay will be of course larger:



When the host is unavailable, you will receive no specific error message, but you will see that no packets get through, the answer is something like this:

“0 packets received, 100% packet loss”:


Response
PING 192.168.144.89 (192.168.144.89): 56 data bytes
--- 192.168.144.89 ping statistics ---
1 packets transmitted, 0 packets received, 100% packet loss

Or:

Response

```
PING 193.78.67.200 (193.78.67.200): 56 data bytes

--- 193.78.67.200 ping statistics ---
1 packets transmitted, 0 packets received, 100% packet loss
```

Or:

Response

```
PING www.topex.ro (193.226.61.45): 56 data bytes
64 bytes from 193.226.61.45: icmp_seq=0 ttl=57 time=4.6 ms

--- www.topex.ro ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 4.6/4.6/4.6 ms
```

7 SPECIFICATIONS

7.1 Technical Specifications

TITLE	DESCRIPTION
Mobile networks supported	Depending upon the actual type of modules fitted GSM /GPRS and respectively UMTS for the 3G+ modules
Frequency bands	Depending upon the actual type of mobile modules fitted GSM/GPRS/EDGE: dual, tri-band (800/900/1800 MHz) or quad band UMTS 2100MHz: 2100 MHz (Band Class 1)
Supported protocols	TCP/IP, PPP, CHAP, PAP, ARP, UDP, SIP and H323, NTP and others
VoIP	Up to four uncompressed channels, H323 and SIP protocols supported
Features	Web page configuration, by means of a browser, no additional software is required for administration and management
Wired Network interface	Switch with four LAN ports, Ethernet 10/100 base-T Connector type: female RJ45 Transfer speed: 10/100 Mbps
RTC	Real Time Clock with holding Li-ion battery, keeps accurate time even when the equipment is powered off.
Max. transmitter power	GSM/GPRS/EDGE 800/900MHz: +32dBm (Power Class 4) GSM/GPRS/EDGE 1800MHz: +29 dBm (Power Class 1) UMTS/HSDPA 2100MHz: +23dBm (Power Class 3. 8PSK mode Class E2) , only for devices fitted with 3G modules
Receiver static sensitivity	GSM/GPRS/EDGE 800/900: - 107 dBm 1800 MHz: -105 dBm Compliant with TS 05.05 (R99) UMTS/HSDPA 2100MHz: Compliant with 3GPP TS 25.101(R5) only for devices fitted with 3G modules
Voice service	GSM: FR, EFR, HR, AMR UMTS: AMR(12.2kbps/10.2kbps/7.95kbps/7.4kbps/6.7kbps/5.9kbps /5.15kbps/4.75kbps)
Concurrent service (Based on UMTS)	1 UMTS CS voice + 1 UMTS PS data, only for devices fitted with 3G modules
SMS	Supporting SMS based on CS domain of GSM or UMTS Supporting SMS based on PS domain of UMTS
Mobile antenna	Single external quad-band antenna with magnetic base and cable
Supply voltage	12 $V_{D.C.}$ (+ centre wire, - external conductor)
Supply adapter	Special adapter from mains, Mean Well. Type: GS40A12 Input: 100-240V $_{A.C.}$, 50/60 Hz, max 1.0 A Output: 12$V_{D.C.}$ / 3.34A Max. Power: 40 W

TITLE	DESCRIPTION
Power consumption	Less than 33 W
Status indicators	Three color LEDs and one green LED for each LAN interface and mobile module
Temperature range	Operating: 5^0 .... 50^0 C Storage: 0^0.... 60^0 C
Dimensions (L x W x H)	26 x 20 x 4,8 (cm) except protrusions

7.2 OPERATING ENVIRONMENT

The VoiBridge Lite was designed for indoor use only, so you should NOT operate it outdoors.

Install the VoiBridge Lite in closed rooms or enclosures, where the environmental conditions should be:

- operating temperature range: from 5 to 50 degrees C
- relative humidity: from 10 to 85 %, non-condensing

Avoid dust and prolonged exposure to sun. In addition, VoiBridge Litemust NOT be used in a flammable or explosive environment, or in locations where toxic or flammable gases may accumulate.

The equipment must be handled with care, to avoid mechanical shocks and blows.

The VoiBridge Lite should not be used in an environment with high level of EMI (electromagnetic interferences) that is in close proximity to high power equipment such as electric motors or heaters. In addition, it should not be placed near copiers, PC monitors, TV sets or other audio-video appliances.

In order to ensure adequate working temperature, the VoiBridge Lite interface must not be used too close to heat sources or in direct sunlight.
Also, it must not be overcrowded: leave free space around, below and above the VoiBridge Lite. This is needed both for connecting Ethernet and antenna cables, and also for ventilation (natural air cooling to dissipate the heat generated during operation).

When allowed operating temperature is exceeded this may not have an immediate, visible effect on the VoiBridge Lite unit, but it can result in unreliable operation, accelerated ageing and hence diminishing of lifetime.

Also, you must have free space to the front panel of the unit, to allow easy access for replacing the SIM cards used inside VoiBridge I4-Mobile.

When selecting the location for installing the external antennas of the VoiBridge I4-GSM , refer to the recommendations described in the chapter about mounting the equipment.

The TOPEX VoiBridge Litedoes not include materials or components that are harmful to the environment.
When the life cycle of this device has expired and it cannot be repaired or re-used, dispose of it in accordance with applicable laws and legal regulations.

8 GLOSSARY

3G – “Third generation” mobile networks, specially designed for high speed data services. The classic definition of wireless networks that following the 2G systems (GSM) and they offer high speed data services in addition to the basic voice capability. These 3G mobile communications systems provide an enhanced range of multimedia services (high speed Internet access, video streaming, etc.). The high data transfer speed specific to the third generation communications network leads to an increased efficiency of information transmission, while the real time access to data and information means important savings of time and money. UMTS is the best known of the 3Gnetworks, while HSPA (HSUPA, HSDPA) is a 3,5G development, also called 3G+. VoiBridge I4-GSM may be fitted with mobile modules for 3G and 3G+ networks.
AMR – Acronym for **Adaptive Multi-Rate** Vocoder. AMR is a patented audio data compression scheme optimized for speech coding, according to GSM 06.90. AMR was adopted as the standard speech codec by 3GPP in October 1998 and is now widely used in GSM and UMTS. Uses link “adaptation” to select from one of eight different bit rates, based upon actual conditions of the mobile link. Owing to its adaptative nature, it is said that AMR provides the highest quality of speech clarity for remote mobile phone communication at the lowest possible cost. Previous codecs used in GSM, such as Enhanced Full-Rate (EFR) could not adjust their rate of bits produced. Only works for VoiBrige-4-GSM equipments fitted with certain GSM modules (form Siemens).
ANI – Acronym for **Automatic Number Identification** - a feature of telephony intelligent network services which allows subscribers to display or capture the telephone numbers of calling parties. The service is often provided by sending the digital tone multi frequency (DTMF) tones along with the call. Home users of ANI can screen callers. ANI is commonly used by emergency centre dispatchers to save the caller having to report the information and, when necessary, to help locate callers. A telephone company's 9-1-1 service to a public safety point usually includes the ANI feature. For instance, in a call centre, ANI displays the number of the calling party to the call centre agent in real time. Among other things, the call center can use the information to forward calls to different people for different geographic areas.

DNS Server Address (Domain Name System) - DNS allows Internet host computers to have a domain name and one or more IP addresses. A DNS server keeps a database of host computers and their respective domain names and IP addresses, so that server your ISP has assigned.
Domain Name Resolution - The resolving of a domain name. Internet applications don’t communicate with domain names such as google.com or topex.ro, instead they use IP addresses (for example 193.226.61.95 or 216.239.39.99). Domain Name Resolution is the process (transparent for the user) of converting domain names into corresponding IP addresses. Every operating system has routines that deal with resolution of domain names.
Ethernet - Standard for wired computer networks. Ethernet networks are connected by cables and hubs, and move data around. For wired connections, VoiBridge I4-GSM provides four Ethernet 10/100 ports, for the local LAN.
Firewall - System designed to prevent unauthorized access to or from a private network. The firewall determines which information passes in and out of and prevents anyone outside of your network from accessing your computer without authorization and possibly damaging or viewing your files. Any company with an intranet that allows its workers access to the wider Internet must use a software or hardware firewall to prevent outsiders from accessing its own private data resources and for controlling what outside resources its own users have access to. Here the firewall is software a set of related programs (residing on the gateway server) that protect the resources of the local (internal) network. VoiBridge features a SPI firewall, fully configurable.
Gateway - A network point that manages all the data traffic of your network, as well as to the Internet and connects one network to another. VoiBridge Liteis a mobile gateway, since it interfaces between VoIP calls form the local Ethernet network and the voice/data mobile networks.

H.245 alphanumeric – specific protocol for sending out DTMF under VoIP. When you use H323 protocol for VoIP instead of SIP, you can select the option “H.245 alphanumeric”. The ITU-T H.245 standard specifies several ways of sending out DTMF. Tones are sent out over the H.245 signaling channel, rather than in-band with voice traffic via RTP channel. H.245 transmits DMTF tones to the receiving gateway as the ASCII character it represents (1, 2, 3, and so on). It does not send tone-length information. Each tone is assumed to last 500 milliseconds (ms).
The H.245 signaling channel is considered to be reliable channel, so the packets that transport the DTMF tones are guaranteed to be delivered. However, because of the overhead of using a reliable protocol, and depending on network congestion conditions, the DTMF tones may be slightly delayed. Topex has implemented the alphanumeric version of the H.245 signal protocol for better compatibility - all H.323 version 2 compliant systems are required to support the "h245-alphanumeric" method, while the support for the "h245-signal" method only optional.
IP Address – Short from Internet Protocol address. The numerical address of a network device or resource as expressed in the format specified in the Internet Protocol (IP). In the current addressing format, IP version 4, the IP address is a 32-bit (4 bytes) sequence divided into four groups of decimal numbers separated by periods ("dots"). Each number can be zero to 255. These four groups of numbers look like “127.0.0.1” or „213.154.120.170”. The four numbers in an IP address are used in different ways to identify a particular network and a host on that network.
IP – Acronym for Internet Protocol. It is the protocol from TCP/IP that directs the way data is sent from one computer to another on the Internet. The messages are divided into data packets, routed from the sender network to the receiver network and there re-assembled in the right order to re-create the original message. Because a message is divided into a number of packets, each packet can, if necessary, be sent by a different route across the Internet. These data packets can arrive in a different order than the order they were sent in. The Internet Protocol just delivers them. It's up to TCP protocol (Transmission Control Protocol) to put the packets back in the right order.
Note that IP is a connectionless protocol, which means that there is no continuing connection between the end points that are communicating. IP corresponds to the layer 3, the Networking Layer from the Open Systems Interconnection (OSI) communication model.
ISP (Internet Service Provider) - An ISP is a business that allows individuals or businesses to connect to the Internet. Users log on to the Internet using an account with an ISP or Internet Service Provider. ISPs can serve IP addresses dynamically, or assign static (fixed) IP addresses to individual computers.
LAN - Acronym for local area network (computer network that spans a relatively small area). A group of computers, workstations and associated devices that share a common communications line or wireless link and are located in a relatively limited area, typically inside the same office building. The communications link that interconnects these computers allows any device of the network to interact with any other from the same network. The devices that compose a local network (workstations, personal computers and peripherals) are called nodes and typically share the resources of a single processor or server. This server has resources (applications, processing and data storage capabilities) that are shared in common by multiple computer users. The LAN can be connected to other local networks over any distance via phone lines, wireless links or other connections, and the system of LANs connected in this way is called a wide-area network (WAN).
The LAN may also be connected to the Internet through a gateway. VoiBridge Liteequipment is connected in a local network through its four Ethernet ports.

LCR – Acronym for **Least Cost Routing** - Refers to the method for delivering calls according to the lowest cost carrier. Often more than one carrier can compete to deliver a call and depending on their relative charges, the LCR Switch (which contains a database of our carriers, destinations and charges) will connect the call via the cheapest carrier. This process means searching for the optimum traffic routes via one or several traffic routings enabling a cost reduction. VoiBridge Liteimplements LCR functions, since it analyze incoming calls and sends them to the established route or towards the GSM module (with local or remote SIM card) which assures the minimum costs.

MAC Address (**Media Access Control**) - A MAC address is the hardware (physical) address of a device connected to a network.
All network interface controllers must have a hard-coded and unique MAC address. The MAC address is applied at the factory and uniquely identifies network hardware, such as an Ethernet cards, modems or wireless adaptors on a LAN or WAN. The first part of the address is unique to the company that produced the device, and beyond that it is a sequence of digits unique to any single device manufactured by a company. VoiBridge Litefeatures four LAN Ethernet port, so it will have one MAC for each of these ports.
RBT – Acronym for Ring-back Tone. RBT or Audible Ringing Tone is the audible ringing that is heard by the calling party over the telephone line after dialing and prior to the call being answered at the receiving end. This tone assures the calling party that a ringing signal is being sent on the called party's line, although the ring-back tone may be out of synchronization with the actual ringing signal. The Topex mobile gateways send out the RingBack from GSM/FXS/FXO/CDMA in band. To this purpose, a PROGRESS message is sent by default by the Topex equipments. You should check if PROGRESS is enabled on remote equipments interconnected with VoiBridge, otherwise you should disable sending progress messages in VoiBridge-I.
RTC – Acronym for **real-time clock. B**attery-powered clock microchip that keeps accurate time in an equipment. It stores and updates the current time and date values. The time values are for the year, month, date, hours, minutes, and seconds. The RTC chip must have an alternate source of power, so it can continue to keep time while the primary source of power (the mains adapter of VoiBridge, in this case) is off or unavailable. Normally this alternate source of power is a “coin’ type lithium battery, which powers the RTC even when the rest of the equipment is off. The RTC of VoiBridge Liteensures accurate timekeeping even if the NTP server is disabled, or during the time while the equipment is shut off (not powered).
SNTP - Acronym for **S**imple **N**etwork **T**ime **P**rotocol. Simplified version of NTP, Internet standard protocol used to update the real-time clock in a computer. It assures accurate synchronization to the millisecond of computer clock times in a network of computers. NTP is very useful in packet-switched, variable-latency data networks. In case of VoiBridge I4-GSM , you can use SNTP to synchronize the equipment with one or two remote Time severs, accessible over the Internet.
NTP runs as a continuous background client program on a computer and it sends periodic time requests to servers, obtaining server time stamps and using them to adjust the client's clock. NTP uses UDP port 123 as its transport layer. It is designed particularly to resist the effects of variable latency. There are numerous primary and secondary servers in the Internet that are synchronized to the Coordinated Universal Time (UTC) via radio, satellite or modem. For more information, visit www.ntp.org.
Routing -The process of determining and prescribing the path or method to be used for establishing connections and forwarding data packets. In a network, a 'routing switch' is a device that combines the functions of a switch, which forwards data by looking at a physical device address, and a router, which forwards packets by locating a next hop address. Each host with a router in the network uses the routing table information to determine the next host to route a packet to for a specified destination.
S-HTTP - Acronym for SECURE HYPERTEXT TRANSFER PROTOCOL. A secure way of transferring information over the Web, by using an application-level encryption scheme. S-HTTP is an extension of the normal HTTP with security enhancements for WWW-based commerce. Web pages that use S-HTTP have a URL starting with https://. Typically HTTP data is sent over TCP/IP port 80, but HTTPS data is sent over port 443. The standard was developed for secure transactions, and uses 40-bit encryption ("weak" encryption) or 128-bit ("strong" encryption).
The HTTPS standard supports certificates and allows encryption, digital signatures, authentication, or any combination of these. The S-HTTP type of transaction security is more secure than a user ID and password, thus it is mostly used by financial institutions (for example for credit-card purchases over the Web).
Since VoiBridge Liteprovides S-HTTP connection to its pages of configuration, this means a higher degree of security for you.
SMS - **Acronym** for **Short Message Service**; means the transmission of short text messages to and from cellular phones. The messages must be text only (no images or graphics) and not longer than 160 alpha-numeric characters. mobile network) from the computer connected to it. Also, it performs email-2-SMS and SMS-2-email conversions.

SIP – Acronym for **Session Initiation Protocol** - a protocol proposed standard for initiating, modifying, and terminating an interactive user session that involves multimedia elements such as video, voice, instant messaging, online games, and virtual reality. It is one of the leading signaling protocols for Voice over IP, along with H.323. VoiBridge I4-GSM can be used for VoIP calls that use either SIP protocol or H323 protocol.

SIP clients traditionally use TCP and UDP port 5060 to connect to SIP servers and other SIP endpoints. SIP is primarily used in setting up and tearing down voice or video calls. However, it can be used in any application where session initiation is a requirement. These include Event Subscription and Notification, Terminal mobility and so on. There are a large number of SIP-related RFCs that define behavior for such applications. All voice/video communications are done over separate transport protocols, typically RTP.
TCP/IP – Acronym for Transmission Control Protocol / Internet Protocol. It was established by the Defense Department of the USA for communications between computers. It has been at first incorporated in UNIX operating system but has become the de facto standard for data transmission via networks, including for Internet.
Currently TCP/IP is the basic communication language or protocol of the Internet, but it can also be used as a communications protocol in private network.
TCP – Acronym for Transmission Control Protocol. In TCP/IP, the TCP part is the one that takes care of keeping track of the individual units of data (packets) that a message was divided into for efficient routing through the Internet. TCP is known as a connection-oriented protocol, which means that a connection is established and maintained until the message or messages to be exchanged by the application programs at each end have been exchanged. TCP is responsible for ensuring that a message is divided into the packets that IP manages and for reassembling the packets back into the complete message at the other end.
At the destination, TCP reassembles the individual packets and waits until they have all arrived to forward them to you as a single file. It also checks the received packets. TCP acts at the transport level (level 4) of the ISO/OSI model. See also ISO/OSI model, packet, TCP/IP.
UDP – Acronym for User Datagram Protocol. It is a simpler protocol than TCP/IP that corresponds to the transport layer of the ISO/OSI model. UDP converts the messages generated by the application into data packets to be sent through IP, but does not check if the messages have been transmitted correctly or not.
UDP allows individual packets to be dropped (with no retries) and UDP packets to be received in a different order than they were sent. Consequently UDP is more efficient but less reliable than TCP and is used to different purposes - primarily for broadcasting messages over a network. With UDP, reliability is wholly in charge of the application that generates the message.
UDP is used often in applications such as videoconferencing or games where optimal performance is preferred over guaranteed message delivery.
VoIP - Acronym for **Voice over IP**. It describes the hardware or software category which allows humans to make phone calls over the Internet. The voice signals are converted in data packets and these are sent on the public telephonic lines, avoiding the costs of the PSTN network. The VoIP applications can be used with a regular microphone and computer speakers, but also can be used IP phones or VoIP speakers, providing an identical experience like the regular telephony. In the last time, the quality and the reliability of the VoIP technology improved so much that many users renounced completely at the standard telephony contracts for VoIP technology.

The manufacturer reserves the right to modify the product and manual for the purpose of technical improvement without prior notice. The manufacturer guarantees the good functioning of the product provided that it has been correctly installed and the directives for storage and usage have been respected. The warranty implies exclusively repairing or replacing the defective unit. The warranty does not include any indirect losses or loss of profit. The manufacturer is not liable for any damage, whether direct, indirect, special, incidental, or consequential, as a result of using VoiBridge Lite.

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It is certified hereby that the VoiBridge Lite unit is manufactured in concordance with the legal provisions concerning responsibility towards the quality of delivered products, fulfils the quality parameters specified in its “User’s manual” and is fit for the purpose for which it has been designed. It also warrants that the equipment will perform substantially in accordance with the accompanying documentation.

Any comments, suggestions and proposals of yours concerning our products are welcome and we are gladly waiting for your feedback:

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